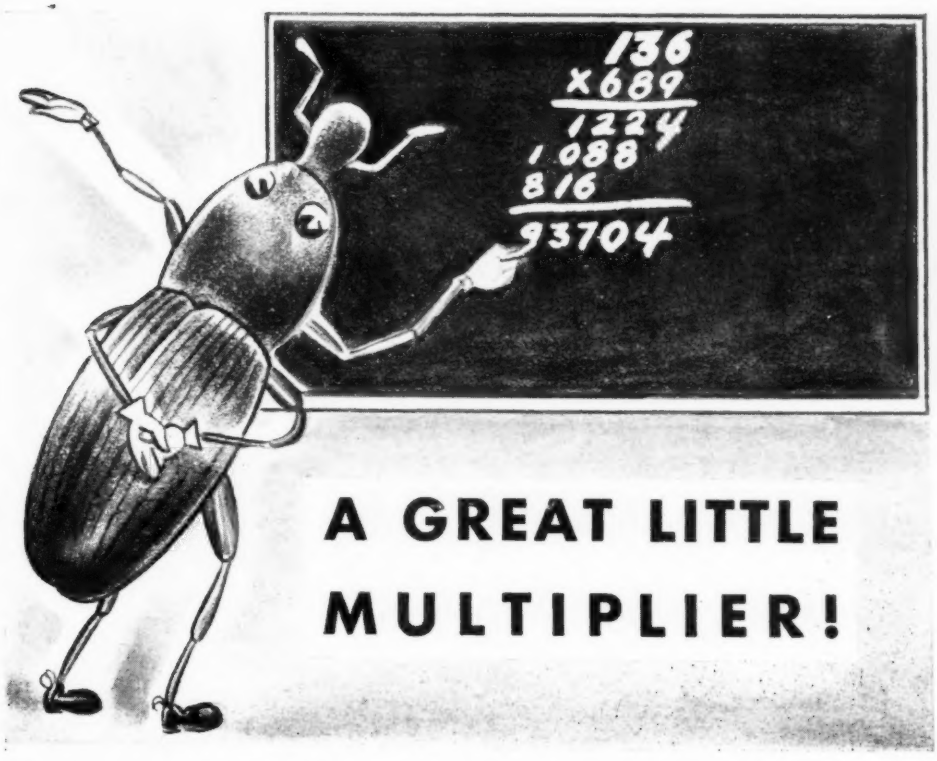
Pests

AND THEIR CONTROL

1942
APRIL
VOL. 10 NO. 4

ORGAN OF THE PEST CONTROL INDUSTRY

Exterminators
Fumigators
Termite Control Operators
Entomologists
Insecticide and Supply Mfgrs.



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Pests

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Exterminators, Fumigators, Termite Control Operators, Entomologists, Insecticide and Supply Manufacturers

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For further details, communicate with
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EDITORIAL

Suppose There Were No Pest Control?

SUPPOSING there were no pest control; supposing there never had been any pest control; would our civilization as it has emerged been different in character? We think so. But, whether or no, it is likely that Man, from his swing-days in the tree tops down to the macabre present, has always practiced some form of pest control, evolving from the crudities of yesterday to the scientific approach of today. The premise: that floods, drought, famine, disease, yes—and even wars—have been catalyzed into being in part, directly or indirectly because of either inadequate or no pest control—can be supported with ascertainable facts.

Only by thinking in terms of repercussions on public morale, health, housing and food supplies, if by some fiat in the present war emergency pest control were abolished, can we arrive at a correct perspective—everything being relative—of the harm inherent in lack of pest control research and shortage of "working tools" needed to effectuate the knowledge already in existence. That the Pest Control Industry is being hampered because of a dearth of both; and that the war effort may be impeded as a result, there's no denying. This by-passing of the P.C.I., no doubt, has been conditioned to some extent because of more pressing and more immediate objectives; but if any analogy may be drawn from recent military history, it is that such by-passes have proved a thorn festering in the flank of the by-passers.

The solvent, of course, is immediate and wholehearted participation on the part of all in the N.P.C.A. campaign now under way, to persuade the Governmental agencies, still in doubt, of the important role pest control can and should play in the war drama. Have you given a copy of "Pests & People" to officials?

Japs Employ Bubonic Plague Germs As War Weapon

A STRIKING instance of the indispensability of pest control in war service was brought into sharp focus in a recent article, over the signature of Admiral Fletcher Pratt (U. S. Navy, retired), in the New York Post, which described for the first time the use of germ warfare in China. The essence of this article is made known here:

> *"The Japs are already using that ultimate horror, bacteriological warfare, and it is probably their ace in the hole against us. . . . It started last November 4. A single Japanese plane appeared over Changteh in Honan Province, flew over the city for about an hour and disappeared. No bombs were dropped, but after the all-clear streets and compounds were found liberally sprinkled with rice-grains embedded in little tufts of cotton. . . .*
>
> *Laboratory examination showed both rice and cotton to contain cultures of bubonic plague; within a week there were cases of bubonic plague, which had not had a case of the disease since the founding of the Chinese Republic. . . .*
>
> *In December, just after the attack on Pearl Harbor, Japanese planes appeared over Chinhua, Chin, and Chiu, Chekiang Province, trailing behind them what appeared to be white fumes. This time the white fumes proved to be living fleas, infected with cultures of bubonic and typhus, and fish-eggs with the same. The reason for both the fish-eggs and the rice is to make contact with the local rats; rats are the best spreaders of bubonic plague, the 'Black Death' of the Middle Ages."*

Though the news seems incredible, there appears no reason to doubt it; but regardless of its authenticity, this much is sure: The dark horse of germ warfare will be trotted out of the Axis-warstable at a propitious time.

Only—and only—the organized P.C.I., co-operating with Governmental health agencies and functioning through the instrumentality of scientific pest control, can move with the requisite knowledge, dispatch and efficiency to help stamp out the rat-plague-carriers before the completion of their "double-play" for the adherents of the "double-cross"—assuming, of course, the Industry is not blacked out meanwhile because of a tenuous supply line of essential pest control materials, with consequent diminution of the Industry's effectiveness as a front-line agency in the battle of pest control. If this occurs, it may well prove serious. So now is the time for all good PCO's to come to the aid of their Industry in order that it may continue to serve the country at its top-level best!

Subscribe to "Victory"!

ILLUSTRATIVE of the increased tempo in last minute Governmental rulings with respect to pest Control chemicals, etc., appear in these excerpted headings over items of interest to PCOs in "VICTORY," Official Weekly Bulletin of the Agencies in the Office for Emergency Management, published by the Division of Information:

> *"Carbon Tetrachloride Ceiling Imposed At Current Levels As Resale Prices Mount."*
>
> *"Shortage Of Diphenylamine Makes Allocation Necessary"*
>
> *"WPB Asks For Greater Production Of Phenol, Anhydrous Ammonia."*
>
> *"Large U. S. Sulphur Producer Voluntarily Renews Pledge To Sell At 1941 Base Price."*

Under the circumstances a time lag may develop for some of us who try to keep up-to-the-minute on matters of concern to the Industry. This time lag may be counteracted by subscribing to "VICTORY"—a valuable though

practically costless publication which may be had for 52 issues at a cost of only 75c; 13 issues for 25c. In subscribing: Remit money order payable directly to the Superintendent of Documents, Government Printing Office, Washington, D.C. (Stamps are not acceptable.)

We Stand Corrected

SUBJOINED are parts of two letters which are self-explanatory and of interest. They were the aftermath of publication of the article "Methyl Bromide Unsuccessful as Grain Fumigant in Elevator Bins" in January '42 Pests.—Ed.

NEIL A. MACLEAN COMPANY
San Francisco, California

February 4, 1942

Pests
512 East 14th Street
Kansas City, Missouri

Gentlemen:

We have read with interest the article appearing in the January 1942 issue of "Pests" entitled "Methyl Bromide Unsuccessful as Grain Fumigant in Elevator Bins."

The caption strikes us as being a rather all-inclusive statement amounting to an untrue and unfair reflection on Methyl Bromide. While we do not for a moment question the results reported by the authorities quoted, we do take issue with the conclusion which the caption implies to the layman or to anyone not having the benefit of experience with this fumigant . . .

. . . In commercial practice, it is a generally accepted theory that no fumigant will give 100% kill in 100% of cases. Such results can be expected only when fumigation is performed under "ideal" conditions and it is also agreed that such conditions do not prevail very often. In the case of elevator bins, varying results will be obtained according to grain temperature, dosage, time of exposure, tightness of the bin against gas leakage, and method of application.

When examining the question as to whether a fumigation is "successful," we have found it to be a matter of individual opinion. Some people judge results by planting test insects to determine the percentage of kill, while others collect grain samples from the belt and determine results according to the proportion of live insects to dead by actual count.

To correct the erroneous impression which the caption of the article might create, we should appreciate your publishing this letter either in whole or in part.

Yours very truly,

NEIL A. MACLEAN COMPANY
By: Neil A. Maclean

WHM:DC

UNITED STATES DEPARTMENT OF AGRICULTURE
Bureau of Entomology and Plant Quarantine
Washington, D. C.

"Pests" and Their Control
512 East 14th St.
Kansas City, Mo.

Gentlemen:

". . . We feel that Mr. Maclean is right in his statement that the caption of this little article is rather all-inclusive in its inferences but, nevertheless, the information given in the body of this article is essentially correct. Methyl bromide used alone as a grain fumigant in grain elevators has not been found satisfactory by our investigators. However, it is effective for this purpose when used in combination with the ethylene dichloride—carbon tetrachloride mixture as stated in the last paragraph of the extension article. This Bureau does not, however, feel favorable toward its recommendation in view of our present lack of knowledge regarding the danger to the operator which may be incurred while using this material. We have had very striking proof of this in the death of an employee last fall who was engaged in fumigating grain bins with a mixture of methyl bromide, ethylene dichloride and carbon tetrachloride. We would therefore hesitate to recommend the use of this mixture in such structures as grain elevators where a number of persons may be endangered by the dispersion of this very potent mixture.

We hope this statement will clarify the position of this Bureau regarding the use of methyl bromide which we, of course, regard as a valuable fumigant for some purposes.

Very truly yours,

W. R. Walton, Acting in Charge
Division of Cereal and Forage
Insect Investigations.

War Extra

MEMBERSHIP Service Letter No. 244 comprising ten pages issued by the National Pest Control Association on March 23rd bears the caption "War Extra". The NPCA has been most generous in permitting parts of their service letters to be republished but in this particular case, it has been decided to follow a different course.

Any firm engaged in the pest control service industry must either recognize that it can still continue to go its own sweet way or know that the time has arrived when co-operation is necessary if the industry is to be given consideration as to chemicals, equipment and other supplies. The information provided throughout the ten pages of this service letter brings to the attention of PCO's basic facts with regard to the part the Pest Control Industry can and should have in winning the war and specifically discusses such chemicals as thallium sulphate, sodium Fluoride; chlorine compounds; tires, tubes and retreading; Civilian Defense Employees affected by draft; etc.

We have been assured by the NPCA that a limited supply of these letters will be available for those firms not members of the NPCA providing such firms make request directly to the office of the secretary of the National Pest Control Association, addressing request for a copy of this letter to 3019 Ft. Hamilton Parkway, Brooklyn, N. Y.

Price of Freedom

"These are the times that try men's souls. The summer soldier and the sunshine patriot will, in this crisis, shrink from the service of their country; but he that stands it now deserves the love and thanks of man and woman. Tyranny, like hell, is not easily conquered; yet we have this consolation with us—that the harder the conflict the more glorious the triumph. What we obtain too cheap we esteem too lightly; it is dearness only that gives everything its value. Heaven knows how to put a proper price upon its goods, and it would be strange indeed if so celestial an article as FREEDOM should not be highly rated." —*The Crisis, 1776, by Tom Paine.*

CARPET BEETLES

By **CARL J. WEINMAN**, *Special Research Assistant in Entomology, Ill. Agr. Exp. Station and State Natural History Survey Division, Urbana, Ill.*

EDITOR'S NOTE: *Paper for presentation at meeting of Pest Control Operators, Purdue University, Lafayette, Ind., January 9, 1942.*

I THINK it is hardly necessary for me to spend much time in discussing the various species of carpet beetles and their life histories. Most of you, I am sure, are familiar with members of the two important genera of dermestid beetles which are serious fabric pests.

The common carpet beetle or "buffalo moth" is the best known representative of the genus **Anthrenus.** The larvae of the species in this genus are typically small and rectangular or bluntly oval, with tufts of brown hairs at the posterior end of the body. This common carpet beetle is generally distributed throughout the United States, but it occurs more frequently in the northern states. The varied carpet beetle, generally distributed throughout the country, and the furniture carpet beetle, at the present time confined almost entirely to the eastern states, are other members of this genus. The furniture carpet beetle, incidentally, is the most recently introduced species, having been brought to the United States from Russia in 1911.

The most important and most widely distributed dermestid is the black carpet beetle, whose scientific handle is **Attagenus piceus.** One other member of this genus is recorded as an important fabric pest, but this species, **A. pellio,** occurs infrequently in the United States. The black carpet beetle is, of course, the one which has the familiar, brown or yellow, cigar-shaped larva, with a long pencil of hairs at the posterior end.

According to Back and Cotton, the black carpet beetle was probably brought to America from Europe by the early colonists. Records of its occurrence in this country date from 1806. I'll mention here briefly the life history of this one species. The adult females deposit about fifty eggs, which hatch in six to eleven days. The larval stage ordinarily lasts about ten or eleven months, but under unfavorable conditions (and sometimes for no apparent reason) two or three years are required for larval development. Pupae mature in six to twenty-four days. The adults, after partially emerging from the pupal skin, may remain quiescent for two to twenty days before continuing their active life.

Perhaps it would be appropriate to mention here a matter which lately has been brought to the attention of entomologists and which may well be of some concern to the pest control operator. For several years various workers have noticed a distinct color variation among groups of so-called black carpet-beetle larvae. Some larvae are distinctly yellow—a golden yellow—and others are a dull, chocolate brown. Both varieties have been called the black carpet beetle, and until very recently, no attempt was made to differentiate between them. At the meetings of the Eastern Branch of the American Association of Economic Entomologists in November of 1941, Dr. Warren Moore gave a paper in which he presented evidence that the yellow variety is actually a different species from the brown. Dr. Moore has been unable to get adults reared from the yellow larvae to interbreed with those from brown larvae, and in a few similar experiments which I attempted a few years ago, I too was unable to get fertile eggs from crosses between the two types of beetles.

At first glance, this matter may appear to be of purely scientific concern to a few men interested in the taxonomy of beetles. The possibility, however, that the two species may be fundamentally different in their biology and control is of prime importance to us in applied entomology. At these Purdue meetings two years ago, Dr. Back told me that, in his opinion, the yellow variety is a primary pest of homes and that the brown larvae have grain elevators and mills as their normal habitat. In my conversation and correspondence with Dr. Moore, he has expressed the same belief. There seems to be little doubt that the "yellows" are sometimes more abundant than the browns in homes in the East. In Illinois, however, we rarely see a yellow larvae in any habitat. Among all the carpet-beetle larvae that we at Illinois have sorted through during the past several years, only about a dozen yellow specimens have been observed. We believe, therefore, that in Illinois, the yellow species is comparatively rare, and that the species having the brown larvae is our most important carpet beetle, in homes as well as in elevators and mills.

Unfortunately, records on the distribution of these two species are very meager. Dr. Moore is collecting whatever data he can get, but definite information is difficult to obtain. You men who are working in the control of household insects are in a better position than anyone else to supply the information on the relative abundance of these two species of carpet beetles in homes. I believe, also, that you stand to gain most from our better knowledge of the biology and distribution of these pests.

I should like to discuss briefly the use of black carpet beetle larvae as test insects. I know that some of you run, or at least have run, tests on your own mothproofing materials. It may be of interest to you, therefore, to hear something about what is being done to improve and standardize the technique of testing treated fabrics for their resistance to insect damage.

I strongly suspect that there are nearly as many methods of testing mothproofness as there are men running mothproofing tests. If you have been using one method over a period of years, you probably are convinced that it is a good one, if not, indeed, the very best that can be devised. That's the way I felt, anyway, about the method I was using and still prefer to use. Nevertheless, the time is coming—and coming soon—when a standardized testing procedure will come into general use. Committees from three large, interested groups, the National Association of Insecticide and Disinfectant Manufacturers, the American Association of Textile Chemists and Colorists, and the American Society for Testing Materials, have been developing such a technique during the past two years. When it is approved and accepted, you still are not forced to forsake your own test methods but to permit comparisons to be made among results on different materials and results on the same materials tested in different laboratories, it will be necessary for the data to be based on this standard testing procedure.

I do not want to try your patience by reviewing in detail the proposed test method. I'll merely mention that it is based on the "eat-or-starve" principle, and that larvae of the black carpet beetle are designated as the official test insects. The criterions of effectiveness are the visual damage to the treated fabric, the number of live and dead insects on the fabric at the completion of the test, and the amount of excrement deposited by the larvae during the test period. The important matter in this discussion is that black carpet-beetle larvae are to be used in the standard testing procedure. To those of you who feel that clothes moths are more important fabric pests, as they may be under certain conditions and in certain localities, this specification may require a bit of explanation.

In my own opinion, although it is not stated in the proposed method, it is clearly necessary to test a material against both clothes moths and carpet beetles before one can claim that the material is an adequate mothproofing agent. It is not at all necessary, however, nor even advisable to use more than one species of insect for preliminary tests. The validity of this statement becomes obvious if one considers that a prospective mothproofing agent need be tested against more than one fabric pest **only** if it appears from preliminary tests to be entirely satisfactory against the first species of insect used. In other words, if the test material is not proof against carpet beetles, for example, there is little reason to repeat the tests with clothes moths. It follows that much time can be saved if one uses the hardiest, most voracious and most resistant species of insect first.

Each flea firmly believes that he lives on the most wonderful dog in the world. That's patriotism.

That the carpet beetles, as a group are hardier and more resistant than clothes moths has been recognized by so many investigators that the statement can hardly be questioned. In addition, larvae of the black carpet beetle are much easier to rear and to handle than clothes moth larvae. I have emphasized the use of carpet beetles as a test insect because I feel that those of you who are doing your own testing with clothes moths will benefit in time saved and in being that much nearer the standardized test method by changing to carpet-beetle larvae for your test insects.

Care must be taken in using one species of test insect almost entirely not to interpret your results from any one test as final. By this I mean that it is dangerous to assume that a material which is proof against carpet beetles is also proof against clothes moths. Last year I observed a demonstration prepared by Dr. Moore, in which clothes moths in one test cage fed freely on a certain treatment and ate none of another material in the same cage. With the same two treatments in a cage of carpet-beetles, the beetle larvae ate the one which the moths wouldn't touch and left undamaged that treatment which the clothes moths preferred! In my own experiments, I have found certain materials which are more effective against carpet beetles than clothes moths. Illustrations in which the opposite is true are probably familiar to all of you.

With many misgivings, I approach the subject of carpet-beetle control. Since everyone in the pest control business fights carpet beetles in his own way, and since no one seems to have very great confidence in his own method or in anyone else's, I feel that I am sticking my neck out in expressing any opinions at all. Nevertheless, since I have nothing to sell but a couple of ideas, perhaps I can weather whatever storms may be brewing during the course of this paper.

The use of fumigation and traps in the control of carpet beetles is out

Fourth Annual Southern Pest Control Operator's Conference

Louisiana State University, January 26, 27, 28, 1942.

OPERATORS ATTENDING FOURTH ANNUAL SOUTHERN PCO'S CONFERENCE

of my department, but I do want to mention that work is being done in the development of new fumigants. In some of our own preliminary tests two of these new materials, which may lend themselves to use as household fumigants, appear to have an outstanding toxicity to larvae of the black carpet beetle. In view of the commonly accepted notion that these insects are more difficult than any others to control with hydrogen cyanide, it is encouraging that these compounds under test appear to be as effective against carpet-beetle larvae as against any of a number of grain insects.

For the rest of this discussion, I shall confine my remarks to the use of mothproofing agents in the control of fabric pests. When I speak of mothproofing agents, I refer, of course, to those materials which are useful in imparting to fabric some degree of resistance to attack by clothes moths and carpet beetles.

The damage that fabric pests do annually in the United States has been variously estimated to amount to between $100,000,000 and $250,000,000. The lower figure, given by Dr. Roark in 1929, has been accepted by foreign workers as the best conservative estimate. In view of this large, annual destruction of the nation's economic goods, it is hardly surprising that chemists, entomologists, and textile workers have proposed as remedies almost every imaginable material, from ordinary pepper to the most complicated of organic and inorganic chemicals. Dr. Roark, in his three indices of patented mothproofing agents, lists over fifteen hundred materials for which mothproofing value has been claimed. Only a few of these, of course, have ever been put into general use.

Although reference to damage by fabric insects can be found in the oldest literature, the development of scientific methods of control has taken place largely during the present century. The years since 1920 have produced the greatest advancements in this field of research. Previous to that time the use of naphthalene as moth balls or flakes was the chief means of thwarting the ravages of fabric pests, although the protective value of certain inorganic toxicants, such as arsenical compounds and sodium fluoride had been investigated.

During the early 1920's, several new and promising materials were presented to the public. The first of the so-called "Eulans" were developed about this time by the I. G. Dye Company in Germany. Jackson and Wassell were investigating the repellent properties of various alkaloids — an investigation which led to the use of cinchona alkaloid in "Konate," a powerful moth repellent. A little later Minaeff and Wright published the results of their studies on the silicofluorides as mothproofing agents, and the commercial production of a saturated solution of sodium aluminum silicofluoride under the trade name of "Larvex" followed.

Apparently stimulated by the public's ready acceptance of the products mentioned above, other workers have patented hundreds of materials, many of which have only the barest trace of effectiveness in protecting textiles against insects. Others, though they may be effective, are highly impractical. Jackson and Wassel were granted a patent in 1926 on the use of oleic acid which has little or no protective value. English patent No. 410,364, granted in 1934, relates to the use of rotenone-bearing material, the following concoction being listed as an example: "An emulsion of 7% derris powder, 12% hexachoroethane, 4% ammonia linoleate, 25% petroleum, 2% methyl salicylate, and 50% water is used to mothproof wool and to render wool immune to all insects, fungi, and bacteria." A comparatively few of the patents granted between 1920 and the present time constitute definite contributions to the mothproofing problem.

Among the many materials which have been investigated by entomologists and textile workers in particular, the following compounds and mixtures have been reported in the literature to impart some degree of mothproofing to wool: Lauric acid, other fatty acids, acids and salts of selenium, barium and strontium salts, paraphenylene diamine, various vegetable and hydrocarbon oils, sodium fluoride, silicofluorides, rotenone, thiourea, phenylthiourea, allyl thiourea, o-tolylthiourea, phenylsalicylate, cinchona and other alkaloids, pentachlorodioxytriphenylmethane sulfonic acid and other "Eulans." To be added to these, of course, are the thousands of materials reported in the patent literature of all the important countries of the world.

Three distinct types of mothproofing treatments are to be recognized. Perhaps the most common of these is the use of inorganic compounds in water solution, applied by dipping or, more often, by spraying. Recent literature definitely indicates that of all materials of this type, the silicofluorides, with or without the addition of aluminum ions, are by far the best.

The second type is the treatment of fabrics with toxicants dissolved in organic solvents. At the present time, "Konate" is the only proprietary compound of this type which is rather generally recognized as effective.

Finally, there is the use of dye-like materials which have a chemical affinity for wool when applied in hot solutions. Such materials are claimed to impart a permanent mothproof to the fabric, fast to rinsing and washing, to seawater, perspiration, light, weather, and to chemical washes. "Eulan NK," "Eulan CN", and other "Eulans" are probably the most effective representatives of this group. For the purposes of this discussion, we can omit the dye-type agents, since they do not lend themselves to household use or to use by the pest control operator.

I propose now to discuss the highly argumentative matter of water-base versus oil-base mothproofing solutions. Please keep in mind that what I have to say is based on what I have read and on what I have concluded from my own experiments, most of which have been conducted in the laboratory. To what extent the results of this laboratory work can be converted into practical recommendations, you yourselves can judge.

The type of solvent to be used as a carrier for the toxic agent usually depends on the nature of that toxic agent, inasmuch as few compounds are readily soluble in both water and organic solvents. For the time being, however, let's consider the solvent only, without regard to the toxicant.

At the present time, most of the mothproofing dips or sprays used in homes, either by the householders themselves or by pest control operators, are inorganic compounds dissolved in water. These materials are so inexpensive that the cost to a commercial operator who buys them in large quantities or prepares the solutions himself is practically negligible. This very distinct advantage of low cost is an important factor in the widespread use of water-base mothproofing solutions, particularly in the pest control industry, where labor costs and overhead make it advisable to keep the cost of materials as low as is practical. There is the further argument, of doubtful merit, that materials applied in water will not easily be removed by dry cleaning.

(Continued on page 30)

MATCH-CHEWING mice and rats have been blamed for many a fire. But recent experiments show that these animals will starve to death before touching the inflammable part of a match.

—This Week.

Who't That in Garbage Can? Ratty-Rattus

From Memphis Press-Scimitar, Memphis, Tennessee

The gray rat with the long tail
And the whiskers on his chin
Is eating from your garbage can
All that he can take in.
You must keep it covered with a good lid,
If you drive this pest away—
Put some poison out—
That is good and stout
For these rats—today.

Any rats today?
Rats with typhus
Is what we're hunting—
Any rats today?
Scrape up the most you can—
Here comes the sanitation man—
Help him to get rid of rats with typhus, today.

Any rats today?
We'll be blest—
If we all invest—
In the Typhus Raid
Work with the sanitation man!
Can't make tomorrow's plan—
Not, unless we kill these rats with typhus today!

First came the man and then came the rat—
We put out some Red Squill and that made him scat—
We got a lid for the old garbage can;
Then the old rat had hardly a chance.
It's all in the book if only you look—
It's there if you read the text.
They ruin every city with fleas and disease,
And Memphis mustn't be next.

Any rats today?
All you get—
Will be used, you bet—
In the Typhus Raid.
How can our nation stand
If we don't form a band
And get rid of all the rats with typhus today?

This was a "declaration of war"—on rats—by the women of the City Beautiful Commission when they inaugurated a program recently to rid Memphis of "Rattus the Rat," which was the name of a play staged by a group of students from South Side High at a meeting of the commission at Nineteenth Century Club. The play included the above song, to the tune of "Any Bonds Today?" The words were written by Virginia Dare Climer, former South Side student.

The production was directed by Miss Annekay Tharp, of the Howard Krauss Society, an organization for studying the control of disease-spreading pests.

Mrs. Ila S. Jehl, chairman of the Alley Improvement and Rat Control Committee, said that after judging this spring by a secret committee, prizes of red rose bushes would go to those persons in Memphis whose alleys were the cleanest, and that red rose bushes would be awarded to those whose alleys showed the greatest improvement later.

Everett C. Handorf, sanitary engineer for the Health Department, said city trucks would pick up paper, cans and bottles accumulated by the cleanup.

The base you choose for your insecticide has a lot to do with its Sales Appeal. For example, Penn-Drake INSECTI-SOL, being permanently odorless, 100% volatile, and absolutely PURE enables you to make your product most effective and appealing to the trade. Samples examined after 22 months were still water white and odoriess. INSECTI-SOL contains nothing to stain or soil clothing, drapes, rugs, etc.; it enables insecticides to float longer and penetrate further; it is 100% volatile—yet does not evaporate before maximum toxic effect is reached.

And the perfect base for mothcides — penn drake petroleum products — *is Penn-Drake Deodorized Naphtha*

For full information write Dept. 108.

PENNSYLVANIA REFINING CO.

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The Workings of California Law Regarding Insecticides and Other Economic Poisons

By DR. ALVIN J. COX, *Chief, Bureau of Chemistry, State Department of Agriculture*

EDITOR'S NOTE: *Read before the Ninth Annual Convention of National Pest Control Association, San Francisco, Calif., October 27, 1941.*

I WISH briefly to indicate the development of information concerning insect pests and methods of their control. It is reported that the ancient Egyptians regarded as sacred a certain dung beetle (Scarabaeus sacer) which by feeding on putrid substances, and consuming them, purified the air, and thus proved beneficial to man.

Some of the early methods used to rid the country of grasshoppers are interesting. According to Pliny, Cironaica, Africa, was particularly subject to the ravages of these rapacious insects and on that account the inhabitants were required by law to destroy grasshoppers; first their eggs, wherever they could be found, then their young and lastly, the adult insect. He tells also that a similar law was enacted in Lemnos which required every person to bring annually to the magistrates, a certain measure of grasshoppers.

A remarkable monument to birds is erected to gulls in the Tabernacle Court in Salt Lake City. The legend is that gulls saved the field crops of the Mormons. They swarmed in, ate grasshoppers, went to Salt Lake, disgorged them and returned for more until the pest was eliminated.

There was a time not so long ago when many believed that a hair fallen into a stream of water from the mane or tail of a horse, became animated into a distinct being; dead sticks and leaves were also said to sprout legs and move from place to place. These, and a thousand other equally ridiculous stories were, at one period or another, more or less generally admitted as indisputable truths. But the most obvious errors have often a shadow of truth whereon to rest. The historian of the walking-leaf may have been deceived by the Mantis siccifolium of Linnaeus (the Soothsayer), the wings of which bear some resemblance to a leaf. The Gordius (a worm) resembles a horse hair and no doubt gave rise to the story of the metamorphosis above mentioned; and the account of the walking-sticks may have originated very honestly from the singular appearance and form of the insect which bears his name.

In a book published in 1859 there is recorded a country woman consoling her little boy, who complained that the blackberries he was eating tasted so much like bed-bugs, by telling him "Never mind sonny, keep on eating them, our doctor, the blacksmith says they are good for fever."

For a long time insects have been divided for economic purposes into those useful and those injurious to man. The former furnished mankind with amusement, (butterflies), food (larva and grasshoppers), coloring substances (cochineal), and articles for manufacture (silkworms), commerce and domestic industry (bees). Also we see tiger beetles, carabidae, ladybugs, and many other Coleoptera, which benefit mankind by devouring other insects which are noxious. Wood destroying insects which are important in aiding the decomposition of fallen hardwood trees in tropical forests are generally noxious to man in this country.

In the early part of the last century when everyone paid very little attention to personal cleanliness, it was generally believed a sign of good health to be infested with lice, which were thought to extract the impure juices of the body. Plant lice belong to the same order of hemipterous insects. On the backs of all of them may be seen two honey tubes or warts from which issues a sweet substance very much liked by ants, accounting for the friendly and intimate terms between them. In the early part of the 18th century, Dr. Harris of Cambridge, Mass., mentioning them in his "Report on the Insects of Massachusetts Injurious to Vegetation" says: "The best application for the destruction of lice is a wash made of two parts of soft soap and eight of water, with which is to be mixed lime enough to bring it to the consistency of thick whitewash. This is to be put upon the trunks and limbs of the trees with a brush and as high as practical, so as to cover the whole surface and fill all the cracks in the bark. The proper time for washing over the trees is in the early part of June, when the insects are young and tender." This indicates one of the first insecticides and shows the brush as the predecessor of the spray rig.

These remarks show how new is the development of scientific pest control; in fact, the applications of economic poisons to the need of man, have occurred mostly in my lifetime. Few realize how far we have progressed in less than a century. Economic poisons have greatly increased not only in quantity but also in complexity. There has been large development in the field of synthetic organic chemicals and extracts of plants. Experimental work by experts with a large number of materials is constantly under way with which we try to keep abreast. In 1933 there were registered for sale in California 3,103 economic poisons and today there are 5,406. We still have far to go. However, progress has brought responsibilities and control statutes.

The first economic poisons legislation in California was passed in 1911, amended from time to time, and that function is now carried on under Article 3, Economic Poisons, Chapter 7, Division V, of the Agricultural Code. This, as well as the other Agricultural Chemicals Articles are administered by the Bureau of Chemistry. The materials used for pest control are defined by law as "economic poisons." This term may not have been the best choice but its use has now become general. The word "poisons" usually brings to mind substances such as arsenic, strychnine, and cyanide, rather than economic poisons which refers to a class of materials. The term "economic poisons" introduced by law is simply a phrase adopted to refer collectively to substances or mixtures of substances intended to prevent, destroy, repel or mitigate any and all

insects, fungi, bacteria, weeds, rodents, predatory animals or any other pest. Before any economic poison can be legally offered for sale in California, it must be registered with the Bureau of Chemistry. It is unlawful to manufacture, sell or deliver a non-registered economic poison. There are registered a large number of agricultural spraying and dusting materials, weed killers, poison baits for control of rats, squirrels, gophers, grasshoppers, snails, slugs, crickets, and similar pests, fly sprays, materials for control of worms in poultry and other animals, and of fleas, lice, mange mites, screw worms and similar pests on animals, chemical insect barriers such as tree bands, materials for control of ants, bedbugs, cockroaches, clothes moths, silverfish, mosquitoes and other similar household pests, fumigants, material for treating seeds and bulbs, and materials for the protection of timbers against attacks by teredos, termites and wood fungi, and other chemicals for control of outdoor or indoor pests. For one item, 3,000,000 gallons of oil are used in California annually in spraying citrus. In order to verify manufacturers' economic poison guarantees, the Bureau last year drew and analyzed 1,200 official samples.

Such institutions as the Bureau of Chemistry were established with the **"protection of the user"** against adulterated and unsuitable materials as the primary purpose. The enforcement by the Bureau of the Economic Poisons Article of the Agricultural Code not only is intended to assure users of reasonably effective products of the composition represented but also protects registrants from unscrupulous competition by inferior or misrepresented products. In fact, the economic poisons law was sponsored by the industry. Without intensive legal and chemical control of these highly technical and potentially dangerous products, unscrupulous persons could exploit users and deliver deficient, hazardous, or fraudulent materials. Opportunity for such practice would be detrimental to user and manufacturer alike. The law is set up to protect the public and the manufacturer. It is practical and effective. The power of enforcement lies in provisions that the Director, after hearing, may cancel a registration of, or refuse to register any person who proposes to sell a useless product, or makes or implies false or misleading claims. A registration may be cancelled for repeatedly violating provisions of the Economic Poisons Article. Products must be sold on the basis of their merit.

Section 1071 of the Agricultural Code requires each economic poison to be registered before being offered for sale in California. The Attorney General has ruled that the use of an economic poison in service work constitutes a sale of material, and Economic Poisons Regulation No. 14 has been promulgated in accordance with this ruling. Section 1 of this regulation provides that an economic poison used in commercial pest control service is subject to economic poisons provisions of the Agricultural Code. It must be registered and delivered in an original properly labeled container to the premises on which it is to be used. In our administration of this provision we have not taken exception to a pest control operator in an emergency taking a left-over portion of a registered and properly labeled economic poison in an opened package from one job to a succeeding job provided there is no objection by the succeeding customer and an original package of the same economic poison is opened to complete said succeeding job. In order to use a package on the job commensurate with its size, if the pest control operator wishes to purchase materials at the cheaper prices

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FLUOREX V, an excellent Fluoride Insecticide, has been on the market for many years. It is preferred by many pest controllers and exterminators owing to the prompt and satisfactory results obtained by its use.

FLUOREX V replaces successfully Sodium Fluoride which is in short supply at present and hard to get. It is milled to a very fine powder, light and fluffy, that flows easily through powder blowers, insect guns small and large.

FLUOREX V can be had white or tinted blue. It is both a contact as well as a stomach poison. In the house it controls the various kinds of bugs such as: Ants, Fleas, Waterbugs, Silverfish, Beetles. It is death to Roaches small and large.

FLUOREX V can be used in the garden and on the farm to control the insects that infest fruits and vegetables such as: Japanese Beetles, Bean Beetles, Potato Bugs, Worms and Slugs.

FLUOREX V is poisonous to all insect life and must be handled with the same care and attention as Sodium Fluoride. It must be kept away from children, from eatables and domestic animals.

FLUOREX V has been stabilized in size of packages and prices. It is put up in boxes of 25-50 lbs. at 15c per lb., in kegs 100 lbs. at 14c per lb., also in barrels 325 lbs. at 12½c per lb., f.o.b. New York.

POWDER BLOWERS, SPRAYERS, DUSTERS, RESPIRATORS, FACE MASKS, GOGGLES, SEALING TAPE

in large "drums," he must himself become a registrant and take responsibility for the subpackages he prepares for the various jobs. Most pest control operators simply estimate which is cheaper, the use of another's registered materials or himself to become a registrant. In 1939, an amendment, provided a minimum $10 Fee for small operators who previously had to pay the regular $50 fee.

Since many economic poisons registrants who are also licensed structural pest control operators make only usesales of their economic poisons, there are only two places where samples may be obtained—either from the registrant or the purchaser. Special effort is made to secure samples from the purchasers. If that is not feasible, the samples are drawn from a registrant's own stock. In each case of the latter type, it is first ascertained from the registrant or his employee that the material to be sampled is the material actually used on pest control jobs. The evidence which serves as a basis for reporting upon labeling is obtained by observing containers which the registrant or his responsible party reports he actually uses in transporting economic poisons to the job.

During the last fiscal year there were drawn official samples of approximately 100 economic poisons registered by licensed structural and household pest control operators. Approximately one-quarter of the samples did not meet the guaranteed analyses and were reported deficient. A deficiency is a violation of law and must be avoided. One-eighth of the samples were reported misbranded, usually due to failure to attach tags. Some economic poisons sampled were both deficient and misbranded.

There is indicated considerable need by this branch of the economic poisons industry for the Bureau's assistance in getting straightened out, and help is being extended as much as is permitted by other duties. However, a thorough inspection of the supply truck of one company revealed a most commendable state of thoroughness in labeling of all containers; all labels were legible; and there were containers of appropriate sizes for various sized jobs. It was excellent confirmation that pest control operators can accomplish compliance with law. In each case where a significant deficiency or misbranding is found, the registrant receives a letter from the Sacramento office explaining the violation and requesting an explanation from the registrant with regard to his plans to prevent further deficiencies or misbranding. When consistent with our work, we have attempted to render assistance in straightening out deficiencies, otherwise it has been suggested to the registrant that he seek the services of a competent commercial chemist.

Analyses of official samples sometimes uncover a manufacturer's defective methods of operation. In one case a poison grain was guaranteed strychnine 0.76% whereas we found 0.09%, less than one-eighth as much. It was discovered that strychnine was being lost through the use of too watery a slurry into which the grain was being dipped. When this was corrected the registrant reported an analysis by a commercial laboratory which showed the product to conform to its guarantee.

Some structural and household pest control operators are weak in chemistry. One included both caustic soda and sulphuric acid in the same formula and listed both among the active ingredients. In one formula, Dippels oil (bone oil) or pyridin must have been used in a termite treatment for the inhabitants had to leave the premises for some time on account of the odor. In some cases we must even teach arithmetic. It is not an unusual error to show active ingredient 0.5% and inert ingredients 95% to total 100%. Not infrequently a pest control operator who originally regarded the requirements of law as onerous and without value to himself has been surprised to find compliance to the requirements of law is to his own best interest. For example, a pest control operator proposed to distribute ant feeders on the properties of his customers and maintain them by regular refilling. He could comply with the law either by filling them at his place of business and labeling each container, or filling them from a properly labeled container on the property. At first he was somewhat disgruntled, but complied with the first alternative. Now he is not only reconciled to the procedure, but feels that compliance was an excellent step in good business. The labeled containers advertise his product and pest control service. His losses from pilferage of the feeders have noticeably decreased.

Exaggeration and misrepresentation are detrimental both to users and to legitimate manufacturers. Redundancy and inaccurate thinking cause many label difficulties. Registrants have gotten the spirit of eliminating superfluous words to afford more space for necessary desirable information. For example, it is not necessary—and is undesirable—to say **PURE** Coal Tar Creosote, for it would infer that this material is purer than the pure Standard AWPA No. 1 Creosote, which a product must be before it can be designated "Creosote" in California, and might imply that competitive products are not pure. Also it might suggest to some other dealer to use a term such as "Commercial Creosote" for a mixture of creosote and petroleum oil, and thus bring him in conflict with the law. Friendly observers for this office have advised us of alleged statements of intention by several local creosote **dealers** that they would have no difficulty in making their (the dealers') present supply of creosote last, by the simple expedient of adding petroleum oil and selling the mixture as "commercial creosote," when it should properly be labeled CREOSOTE AND PETROLEUM OIL. It was pointed out to our observers that there was no such thing as "commercial creosote" and that the Bureau would appreciate their continued careful watch in order that we could take appropriate action. All cases that have come to our attention have been corrected. "Double acting" or "Triple acting" are not satisfactory expressions for an economic poison that is an insecticide and a fungicide, or one that is a stomach poison, contact poison, and a fungicide. The same restrictions apply to advertising literature as to labels and it is not acceptable in California to distribute literature with claims that have been refused acceptance or that would not be acceptable on a label. Due to the great improvement in labels, the occasional appearance of a very bad old one becomes conspicuous. Some of these remain for years on retailer shelves, but when discovered should be replaced by new stock.

Bureau of Chemistry Announcement No. EP-16 warns everyone to avoid sale of an economic poison **before** its registration. Registration of coined names affords protection because we do not register the same or similar brand names to more than one firm and registration of a brand name reserves the term for use by that registrant only.

The Bureau aims to make its requirements acceptable to the regulatory offices of the Federal Government and other states so that a label accepted by this office should be acceptable to all other regulatory offices. If at any time this does not appear to be the case, we have asked that it be called to our attention.

The minimum requirements for a label are: Brand name or name; legal ingredients statements; directions for use; name and address of registrant; official poison label, if required; and any required restrictive statement. A registrant may go beyond this if the label is not misleading.

Senate Bill No. 792, sponsored by the organized industry, was passed, signed by the Governor, became ef-

fective September 13, 1941, and comprises the only amendment to the Economic Poisons Article of the Agricultural Code made by the 1941 legislature. It amends Section 1065 of the Agricultural Code by inserting three paragraphs to require the registrant of an economic poison to furnish printed directions for use with each container of economic poisons which is not to be used in its original form without dilution, in accordance with established local custom. In general, it is believed the directions should be on the label. This amendment will require revision of some of the labels of economic poisons now sold in California. The decision as to what constitutes adequate directions for use on the label of the many different types of products under the jurisdiction of the Economic Poisons Article will require careful study, and manufacturers will be given reasonable time to make the required changes. However, manufacturers generally for some time have been fully aware that adequate directions for use were essential for the satisfactory performance of their products in the hands of consumers, and it is believed that most labels now in use in California already conform to the new requirements. Products registered under a use-sale type of registration now carry the legend "Licensed for use-sale in connection with registrants's own pest control service work," which, at present, is accepted as adequate directions for use.

To some it is still not clear why the statement, "100% active ingredients" is unacceptable. This might imply that the product is 100% active, or would affect a 100% kill under all conditions. When an economic poison contains no inert ingredients, it is acceptable to state on the label, "Active ingredients 100%." In such a phrase the percentage properly refers to the composition and not the activity.

Repeatedly come accounts of poisoning involving deaths. These are frequently from white poisons in a plain paper bag, unlabeled, stored in the foodstuffs cabinet. It has long been the opinion of those interested in insecticide manufacturing that powdered fluorides and arsenates, as a precautionary measure, should be distinctively colored. Manufacturers in California have voluntarily adopted this practice. The color selected for sodium fluoride is Nile blue and that for lead arsenate and calcium arsenate is pink. Structural and household pest control operators in California do occasionally give or sell to service customers some of the economic poisons, and in some cases it has been unlabeled. Nothing but carelessness will cause a pest control operator to leave behind an unlabeled portion of material and if he does this he has no protection of law against what may happen. Each container must be so labeled that the protective label cannot be removed so long as any part of the contents remains in the package.

Metaldehyde has been shown to be a liver poison, and at least one child's death has been ascribed to acute hepatic necrosis following ingestion of metaldehyde-calcium arsenate snail bait. There was another case of a child having acute hepatic necrosis from the same cause which did not actually result in death. There is no use trying to dodge the issue of poisons. Rather let us try to make the use of economic poisons less hazardous, and save lives. It is contradictory to try to set up a statement such as "The Safe Fumigant" in large letters and at the same time show a warning skull and cross-bones and the word "Poison."

There are needless cases of poisoning from carelessness, but the Bureau is using every available means to safeguard the public. The Bureau has jur-

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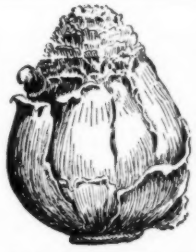

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isdiction not only over composition and physical condition, but also over containers of economic poisons. Sale of poisoned bait in a bottle cap or in a container open at both ends has been declared contrary to the best interests of public health and safety. To prevent confusion with collapsible tubes commonly used for food products, tooth paste, and other household articles, the Bureau has refused to permit arsenical ant jelly to be marketed in such containers. Registration has been denied for filled collapsible tubes to be used as ant feeders in the garden. There are a few economic poisons still being packaged in collapsible tubes, but we hope to get these replaced by less hazardous containers. Several years ago action was taken to require the poison label at the top of those collapsible tubes already in use for economic poisons. Previously, in some cases, the poison insignia had been near the bottom of the tube where it was lost with the first few rolls of the tube. From time to time other types of unsatisfactory containers have been improved in design to a point of being acceptable.

Even though not eligible for sale in California a couple of ordinary bottle caps filled with poisoned sugar for ants, which were given away as samples, attracted a child who put the devices in her mouth. The mother promptly administered ipecac which emptied her stomach. One can imagine the hazard if the article were in general distribution. Several cases of poisoning have been reported wherein the poisoned child was recovering nicely to all appearances, even sitting up and playing, but with death occurring shortly and suddenly thereafter.

In dealing with poisonous products when several containers are packed together and there is no objection to opening the carton for inspection or display of contents and each individual container is properly labeled, the carton need be labeled only for purposes of identification and shipping. If the carton is not readily openable or there is objection to opening it, then the carton must be labeled as the original package with the same full information as required on the individual container label.

Section 1066 of the Agricultural Code states: "It shall be unlawful for any person to sell or to possess within this State any thallium salts or preparations thereof, unless same is for sale to and for official use for pest control purposes by Federal, State, or county officers or employees or under their immediate supervision, or for sale to and for use by licensed physicians, surgeons, pharmacists, or veterinarians in connection with their respective professions, or for sale to and for use by a registrant solely in the manufacture of economic poisons products for export outside of this State and which products are so exported." The actions of employees of the Bureau are governed by their responsibilities under the law. The Bureau has no choice but to enforce the law in accordance with the terms of the statute as adopted by the legislature, though the personal viewpoint of certain pest control operators may not be in sympathy or accord with the statute.

No little part of the difficulties of the Bureau has been caused by untrained persons breaking into the agricultural chemical business. Economic poisons must be understood in order that they may be made effective, and constantly more and more effective. A person without sufficient background can entirely misunderstand and muff the point. A manufacturer of a disinfectant reported that the Division of Animal Industry would not let him sell his material, but did not interfere with others selling theirs. He protested that, even though he was a registrant and had complied with all our requirements, he was being discriminated against. Investigation disclosed his disinfectant was a phenolic material, which is not suited for use near meat or other animal products that readily absorb any characteristic odor. There is no objection to the use of the material in an office outside or other remote portion of a packing house.

The Bureau desires to be of maximum assistance to all concerned, and hopes that they will feel free at all times to request assistance from us in those provinces where we have jurisdiction. By confronting our common problems in a cooperative manner, we not only may reach the solutions, but each of us gains an understanding of the difficulties which the other faces.

Termite Swarmings Prevalent

One can almost expect to read all kinds of exaggerated stories about termites as efforts are made to impress the public with the seriousness of termite infestations. The element of fear that is attempted in these articles cannot help but make for unfavorable impressions and will undoubtedly bring refutation from entomologists and other public officials. As termite operators are called upon to contribute articles to the daily press or various magazines, it is suggested that there be a degree of moderation.

A. E. Ritt of Philadelphia, Pa. is to be commended for his interesting contribution that was published by "The Philadelphia Purchasor", March 1942 issue. The article carries the title "Busy Insect—Big Repair Bill" and we quote the article verbatim—

Building owners throughout the country are paying an estimated $50,000,000 damage bill this year because of this insect.

That's the figure generally conceded to be conservative among those who make it their business to control the ravages caused by the lowly termite, an ant-like creature found in every State and of serious concern in more than two-thirds of them.

Termites are the most dangerous of all wood-eating insects. Although often confused with ants, they are not really related. In fact, ants are their deadly enemies.

Swarmers Give Evidence

About this time of year we see the visual evidence of termites. Swarmers emerge from the ground to start new homes. These winged swarmers, whose function it is to start new colonies, fly in spring and autumn winds to new unsuspected locations, bore into the ground, and breed new colonies. The appearance of these swarmers is a sure indication of the presence of termites.

The Control of Termites Is the Work of Experts

The problem of control and prevention is made difficult by the living habits of termites. They build their nests deep in the ground sometimes eight feet down—they build tunnels from the ground to their food supply which consists of wood or any other material containing cellulose. Since they cannot stand the open air they work silently and unseen inside the wood so that their presence often is not suspected until great damage has been done.

How Can the Property Owner Detect the Presence of Termites?

The surest and simplest way is by an inspection of experts—and this is usually free. A termite inspector should be used who knows not only the evidence for the presence of termites, but also can allay fear which may be caused by harmless indications.

Taxes and Termites

STILL another approach offered by a firm in New York City; namely, the Termite Control Corporation is the following:

Secretary of the Treasury, Henry Morgenthau, addressing members of Congress

said, "War is never cheap but it is a million times cheaper to win than lose." Perhaps never before have we so gladly contributed our share of the tax burden and if called upon for even a greater effort we will all respond with the same spirit that made our country the great nation that it is.

Increased taxation, our purchases of more and more Defense Bonds, will demand sacrifices on our part. Budgeted economy in our homes and offices will be necessary for years to come. Many of our every day conveniences will be missing. We have already been told to limit the use of those materials which cannot be readily replaced. Keeping our homes in good repair becomes a duty of all of us on the home front.

In the first line of conservation looms the termite problem. This year subterranean termites in the United States are again scheduled to cause an estimated economic loss of over $40,000,000. Consider what this amount represents in terms of bombers, ships, tanks, men and materials. Much of this damage is avoidable. Termite destruction can be prevented; termite life can be controlled.

This month in thousands of homes and buildings in and around New York there will suddenly appear a swarming of adult reproductive termites. They will resemble ants with wings (yet are not even related to ants). After a brief flight indoors or outside, the termites will lose their wings and seem to disappear. Actually, new colonies are being formed, a warning of increased termite activity in the future. Other indications may be the appearance of long slender earthen tubes on foundation walls or branching out from cracks in the concrete floors of basements. Any "rotted" wood or sagging, uneven floors should be suspected. Bill beams, joists, window frames, girders, and all substructure wood members should be carefully inspected by a qualified expert who will be glad to tell you whether or not termites are damaging vital supporting timbers. Delay in detecting the presence of termites increases the ultimate cost of repairs and control, with the possibility that as the war effort continues, essential chemicals, iron, steel and wood for structural modifications will be difficult and costly to obtain.

Winter Mouse

After reading Thareaus' Journal

It is a snug life for the meadow mouse!
He has a winter cabin in the weeds.
He makes no shoveled path before his house.
On his front porch, the friendly winds drop seeds.
No wider than one's thumb, his open door
Is marked by inserts of his tiny tread.
An oak leaf is a rug upon his floor;
A milkweed pod suffices for his bed.
Each snowflake adds a shingle to his roof.
In his fur coat, he scorns man's hoarded heat.
He only asks that owls shall stay aloof;
That no fox finds him in his small retreat.
Sleek and content, he nibbles caraway—
While the moon serves him from a silver tray!

—Adin Ballou.

—N. Y. Herald-Tribune.

Unemployment is blamed on the machine age . . . as a matter of fact, the fault lies in the age of the machine.

Plants That Grow on Insects

Few people without a scientific interest in strange and obscure members of the Vegetable Kingdom have ever heard of a curious fungi listed in the botany books as cordyceps.

These tiny plants, some of them too small to be seen with the naked eye, have a habit of growing on insects, especially spiders, instead of in the ground.

One family of this plant is found in the West Indies and prefers to fasten itself, as an unwelcome guest, on the bodies of wasps. It is not unusual to see some of these insects flying around with vegetable growths as long as themselves trailing out behind them.

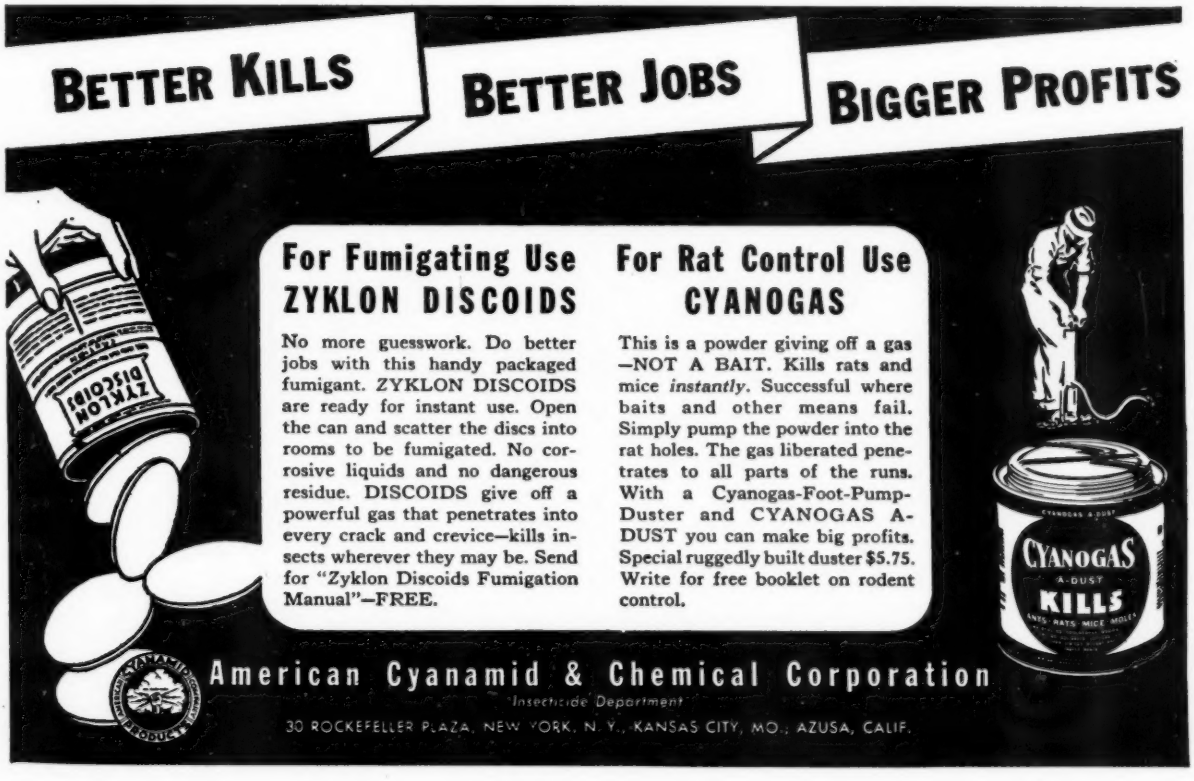
Other members of the same odd family imbed themselves in the bodies of caterpillars and eventually grow bigger than the uncomfortable hosts to which they cling.

In their way, these extraordinary vegetables help to keep down certain destructive insect pests, because they finally drain the life out of their victims.

—The American Weekly.

Barro Colorado Island, Panama, is the most heavily infested termite area in North America. However, a house of southern pine treated with zinc chloride, for which creosoted timbers were used in foundations and framework, has withstood termites since 1916. Wood that is untreated is usually devoured within one year.

The man of the hour spent many days and nights getting there.


BETTER KILLS
BETTER JOBS
BIGGER PROFITS
For Fumigating Use
ZYKLON DISCOIDS
No more guesswork. Do better jobs with this handy packaged fumigant. ZYKLON DISCOIDS are ready for instant use. Open the can and scatter the discs into rooms to be fumigated. No corrosive liquids and no dangerous residue. DISCOIDS give off a powerful gas that penetrates into every crack and crevice—kills insects wherever they may be. Send for "Zyklon Discoids Fumigation Manual"—FREE.
For Rat Control Use
CYANOGAS
This is a powder giving off a gas —NOT A BAIT. Kills rats and mice *instantly*. Successful where baits and other means fail. Simply pump the powder into the rat holes. The gas liberated penetrates to all parts of the runs. With a Cyanogas-Foot-Pump-Duster and CYANOGAS A-DUST you can make big profits. Special ruggedly built duster $5.75. Write for free booklet on rodent control.
ZYKLON DISCOIDS
CYANOGAS
A-DUST
KILLS
American Cyanamid & Chemical Corporation
Insecticide Department
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Fumigating Action of a Mixture of Orthodichlorobenzene and Naphthalene Applied by a New Method

By W. N. SULLIVAN, E. R. McGOVRAN and L. D. GOODHUE, *Bureau of Entomology and Plant Quarantine, U. S. Department of Agriculture*

THE INSECTICIDAL properties of orthodichlorobenzene and naphthalene are well known, and these materials have been used with success for the control of some insects. However, their low vapor pressure seriously limits their use, because it is difficult to obtain an effective concentration in a short time. In the case of naphthalene, as well as some other insecticides, considerable progress has been made in overcoming this difficulty, and various devices for increasing the volatilization of naphthalene have been described (Parker, 1928, Hartzell & Wilcoxon 1930, Wilcoxon *et al.* 1933, and Whitcomb 1935). A device for similar treatment of nicotine has been patented by Savage (1932). Recently Sullivan *et al.* (1940) have shown that rotenone and pyrethrum can be dispersed in air by spraying them in solution onto a hot surface. A solution of naphthalene in orthodichlorobenzene has been successfully applied in the same way, and the results of some toxicity tests with this material are reported in this paper.

MATERIALS AND METHODS—A solution was prepared by placing 30 grams of naphthalene in a 100-cc. volumetric flask and making up to volume with orthodichlorobenzene at room temperature after most of the naphthalene had dissolved. This amount is near the saturation point and if large crystals are used, warming is advisable to speed up the solution.

The dispersion apparatus (Sullivan *et al.* 1940) consisted of a nasal atomizer placed so that the nozzle was 4 inches above an electric hot plate and was operated by a small electric pump to spray the solution onto the heated surface.

The test insects were the American cockroach *Periplaneta americana* L. and the housefly, *Musca domestica* L.

The toxicity tests were made in a 216-cu. ft. Peet-Grady chamber held at 2528 degrees C. After cages containing the insects had been placed in the chamber (Goodhue & Sullivan 1940), 80 c.c. of the solution was sprayed onto the hot plate, which was held at about 375 degrees C., an operation requiring about eight minutes. Twenty-four hours later the insects were removed to a constant-temperature room, where they were supplied with food and water. Mortality counts were made in the usual manner after 1, 3, and 10 days.

RESULTS.—The results of these experiments are shown in Table 1. Complete mortality of the flies was obtained in 24 hours. The roach nymphs showed considerable survival after 24 hours, but after 10 days the mortality of both nymphs and adults approached 100 per cent. The untreated checks showed mortality of not more than 2 per cent during corresponding periods of time.

The treatment markedly activated the flies within 30 seconds, and produced a knockdown in 5 minutes and complete immobility 15 minutes after the tests were started. The roaches were affected in 1 to 3 minutes, were violently agitated for the next 10 minutes, and were all on their backs unable to crawl within 30 to 60 minutes.

DISCUSSION.—The results of these tests indicate that the application of orthodichlorobenzene and naphthelene in this manner offers some promise as a method for the control of insects. A much higher concentration can be obtained than by ordinary volatization, and very little crystallization occurs. During this volatilization process there is some decomposition of the materials and a small amount of smoke is formed. Whether the materials are deposited on the surface as microscopic particles, are absorbed and carried in suspension by the smoke particles, or are electrically attracted to the smoke or fog particles is not known at this time.

In addition to the superior effect due to the high degree of dispersion, the method has other advantages. The material is relatively nonpoisonous to man, is relatively noninflammable, has considerable penetrating power, and has the property of activating insects; moreover, the cost of treatment is low. Under natural conditions the insects would probably be driven from protecting cracks and crevices, and thus the effectiveness of the toxic agent would be increased. The chief disadvantages seem to be an unpleasant odor, the probable injury to plants, and the limitation of its use to fairly tightly enclosed spaces. As yet no tests have been run under household conditions, and possible damage to goods and food has not been investigated.

Table 1.—Fumigating action of an orthodichlorobenzene-naphthalene mixture against the American cockroach and the housefly.

Insect	No. of Tests	No. of Insects	Per Cent Mortality After 1 Day	3 Days	10 Days
American Cockroach:					
Nymphs	—	309	53.6	92.3	98.1
Adults	—	326	94.4	99.4	99.8
Total	9	635	74.0	95.9	99.0
Housefly	1	1200	100.0	—	—

SUMMARY.—A new method of applying a mixture of naphthalene and orthodichlorobenzene consists in rapidly volatilizing a solution of naphthalene in orthodichlorobenzene by spraying it onto a surface heated to 375 degrees C. An effective dosage was obtained in about 8 minutes and very little crystallization of the naphthalene followed. Eighty c.c. of this solution was used in a 216-cubic foot chamber in which flies and cockroaches were exposed for 24 hours. The mortality of the flies was 100 per cent after 1 day, but more time was required for the cockroaches to die, the nymphs being more resistant than the adults. More than 95 per cent were dead after 3 days and more than 99 per cent after 10 days. The use of these materials applied by

this method offers promise for the control of certain household and other insects.—8-18-40.

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The Amur cork tree introduced from Asia for ornamental purposes yields a quick-acting insect poison which may have commercial use.

—*Science News Letter.*

Research Developing Treatment for Wool to Thwart Damage by Moths

Production of a wool that foils not only the moth but bacteria, molds and bacterial agents; that shrinks far less in laundering, ages less rapidly and is strongly resistant to chemical agents has been accomplished successfully, Dr. Milton Harris, director of research for the Textile Foundation reported recently.

It is doubtful, however, that it will emerge from the laboratory in any sufficient quantity until the war's end. Among other things, it uses chemicals, is more expensive and requires a bit more of research now being concentrated on war problems.

The process worked out in the foundation's laboratories consists of changing slightly the molecular structure of the natural wool fiber—a research task that produced the cellulose modification which introduced rayon to the country.

Wool, unlike most fibers, is a collection of long fiber molecules joined at many points by cross chains that perform a Jekyl and Hyde role. They set up tensions when the fabric is creased that make it return to its normal shape and give wool its distinctive quality—but they are also an Achilles' heel in that they are very vulnerable to attack.

The foundation's experiments showed that these unstable chains could be destroyed and new stable ones built on the stumps.

A moth, the foundation's report says, is rather on the alkaline side and his destruction of wool consists first of digesting these easy cross chains, then concentrating on the wool protein itself. Faced with stable chains, however, the moth is up against an indigestion he can't overcome.

Any number of the chains can be destroyed and replaced with moth-proof ones but the experiments have shown that 50 per cent replacement is enough to defy the winged nuisance.

Economically, little is known yet about the cost of the new wool. One of the necessary chemicals is not available in industrial quantity but volume demand is expected to fix this situation. The added cost of processing could, by sufficient demand in the post-war era, be trimmed to a few cents a pound.

Tyhus Plagues Madrid

BERLIN (From German broadcasts).—Madrid and adjacent provinces are plagued by new epidemics of typhus and rabies, a Trans-Ocean news agency dispatch from the Spanish capital said recently. The Spanish Health Office Director said infection centers had been discovered in the working-class districts of Cuatro Caminos (the 4th Ward) and in suburban Carabanchel, Trans-Ocean said.

—*N. Y. Herald-Tribune.*

Fleas a Clue to Illness

SACRAMENTO, CAL.—One of the particular jobs of the state department of public health is inspecting fleas. It inspected 30,000 last year. The inspection enables public health officials to ascertain if there are any plague.

J-O PASTE

To the vermin exterminator who is desirous of extending an outstanding service to his client J-O PHOSPHORUS PASTE *is* the solution

For the control of rats and roaches this product is widely and successfully used by Pest Control Operators throughout the country.

J-O ROACH TRAP

For use with J-O Paste

Convenient & Safe

TRIAL OFFER

Send $1.00 and we will ship to you prepaid a two-pound can of J-O Paste, with twenty-four J-O Roach traps, as illustrated.

Prices on 25 and 50 Lb. Pails on request

FREE WRITE FOR COMPLETE AND VERY VALUABLE ANTIDOTE CHART.

JOHN OPITZ, INC.

50-14 39th Street Long Island City, N. Y.

Manufacturers of Exterminating Products Since 1874

POWDERED PYRETHRUM FLOWERS

IN PLACE OF

SODIUM FLUORIDE

Greater quantities of ACTIVO, a pure Powdered Pyrethrum product containing .5% Pyrethrins, are being used by the pest control industry during the present scarcity of SODIUM FLUORIDE.

ACTIVO PRICES LOWER

Prices of ACTIVO have been sharply reduced. Its economy coupled with a high degree of insecticidal efficiency makes ACTIVO worthy of your serious consideration.

. . . Write now for price quotations on ACTIVO, also PYREFUME—as well as RED SQUILL, CUBE and DERRIS ROOT.

S. B. PENICK & COMPANY

50 CHURCH STREET, NEW YORK, N. Y.

735 W. DIVISION ST., CHICAGO, ILLINOIS

THE WORLD'S LARGEST BOTANICAL DRUG HOUSE

The Consumer Angle

A Buyer's View of Insecticides, Disinfectants, Waxes, Cleaners, Moth Products, etc., with a Resume of Common Complaints and Questions as to Most Effective Use of These Products.

By EPHRAIM FREEDMAN
Director, Bureau of Standards, R. H. Macy

EDITOR'S NOTE: *Before National Association Insecticide & Disinfectant Manufacturers, New York, December 1, 1941.*

THE yearly damage caused by moths has been variously estimated at from 200 million to 500 million dollars annually. Yet, many consumers are still uninformed as to the most effective means for moth control. Lack of knowledge of this important subject is not, however, confined to consumers. Recently, a formula containing less than 15 per cent of camphor which, incidentally was the only active ingredient, was suggested for "moth tablets." Since camphor itself must be used in relatively large quantities — i. e., from one-half to one pound to each five cubic feet of confined space, I wanted to know how many of these tablets a moth had to take, and how often—but the information was missing.

Then, there is the product that depends upon the superior intelligence of the moth or perhaps its nesting instinct—for the distributors claim that moths will seek it out—wherever it may be—to deposit their eggs—and the arsenic or the fluoride will do the rest.

Of course, these two examples are exceptions. Most moth products have a legitimate excuse for existing. They save consumers untold millions. But much more can be saved if we disseminate more information concerning the habits of moths, the adaptability of various moth products to articles, the relative permanence of the products, how they should be used to obtain best results and what precautionary measures need be exercised.

From the consumer angle it is smart to know when the supply of para or naphthalene or camphor, or oil of cedar should be renewed and when a cedar chest has lost its moth killing properties. A statement placed on containers of camphor cautioning users not to mix it with para, nor to put it in pyroxylin coated bags would be helpful because camphor has an unhealthy affinity for para and pyroxylin, and causes them to melt. Likewise, camphor frequently causes dyed furs to redden—a source of complaint.

And, speaking of complaints by consumers, or rejections of articles by our Bureau, here are a few picked at random that may supply food for thought.

A moth compound that attacked the finish on the container causing it to become tacky and to stain contacting garments.

A para product which when hung in a closet holding a mah jong set, softened the lacquered surfaces of the mah jong racks.

A moth compound containing benzol. Benzol is an excellent solvent but exceedingly injurious to human beings, particularly the ladies.

Tar bags exuding sufficient brown substance to stain the garments in the bags.

A spray, the vapor of which caused the user to become ill.

An electric device for vaporizing moth products, which constituted a fire-hazard because it overheated.

A wood-shavings product, the only active ingredient of which was approximately 2½ per cent cedar oil.

Among the questions asked by consumers are these—

How should upholstered furniture be treated to guard against moths?

What special care should be given furniture covered by slip covers to protect it against moths?

Is it advisable to put additional moth preventives in a garment bag, chest, or box if the container has already been treated to resist moths?

Will covering furniture with slip covers encourage the growth of moths?

The question of terminology is very important. We have yet to find a moth product that renders an article permanently proof against moth ravage. Even the best of treatments fail in all instances to protect completely against moth ravage. Also, when moth-treated articles become soiled, the danger of moth attack is increased. Because of these facts it remains difficult to understand why the term "moth proof" is continued in use.

Before leaving this subject, I might state that a process for making wool moth-resistant without the addition of mothproofing agents has recently been developed, and, I am told, holds considerable promise.

Disinfectants

The use of disinfectants has undoubtedly brought about a considerable decrease in the spread of contagious and infectious diseases. While proper use of many disinfectants may not be accompanied by the pleasant aromas found in the so-called antiseptics, they are without doubt much more efficient. However, here again we find considerable confusion in the minds of consumers. Disinfectants are germicides—and many people do not know the difference between germicides and insecticides.

A fortune is awaiting the man who can produce a product that is both germicidal and insecticidal, and which will permeate deeply into layers of feathers, hair, cotton, and wool, when contained in articles of furniture and bedding, without injuring the contents or the article itself. If such a product will kill germs and bugs when injected at atmospheric pressures his fortune would be considerably enhanced.

While on the subject of disinfectants we should not overlook deodorants—particularly those that are supposed to remove bad odors from the air. We have had occasion to try out innumerable products which have been claimed to destroy cooking odors, but sauerkraut odor lingers on. One such test stands out very vividly. It was conducted in our laboratories on the 15th floor of our main buildings. The deodorant was used exactly as specified, but it wasn't long thereafter when word came to us that the street floor entrance to the executives elevators reeked of sauerkraut. While

some of these products may reodorize or mask other odors, they hardly deodorize.

For a number of years we have studied the effects of ozone on odors. Frankly, we are yet to be convinced that ozone is an efficient deodorant. I believe it rather numbs the sense of smell, while medical authority reports irritating effects of ozone on mucous membranes.

Perhaps the most popular present day general household and commercial disinfectants are those containing pine oil, although the older highly efficient cresylated and carbolated compounds still retain considerable popularity. The demand for these will probably decrease as the supply of formaldehyde decreases.

Chlorinated products have long been known for their effective disinfecting and deodorizing and bleaching properties. Not all consumers, however, know of the corrosive action of chlorine on metal nor of its deteriorating action when allowed to remain in contact with textiles for long periods of time. Now, that chlorine is on the priority list, some other inexpensive bleach and disinfectant is badly needed, perhaps one with a less damaging effect on metals and fabrics.

While formaldehyde gas is capable of destroying germs in the air, ultravoilet rays have proven highly efficient and evidently, in the quantities used, neither irritating nor harmful to human beings.

Insecticides

An interesting case deals with fluorides. A customer returned some chinaware, which had been stored for several years in a cellar near a coal furnace. The glaze and decorations were partly destroyed.

Examination disclosed the presence of fluorides. Sprinkling sodium fluoride on some chinaware and then subjesting it to sulfurous fumes, duplicated the destructive action. It was subsequently ascertained that fluoride roach powder had been sprinkled in with the chinaware prior to storage. The fumes from the coal furnace did the rest.

The control of vermin in the home is not always an easy matter. While we are only too glad to sell insecticides, when the infestation appears widespread we recommend the services of professional exterminators.

Insecticides of various types are occasionally submitted for our comments. Also, many inquiries are received from consumers concerning these products. Here are a few:

Can mosquito, fly, and insect sprays be used with safety in kitchens?

What will destroy red ants?

How are termites destroyed?

How are silverfish destroyed?

How may book lice be destroyed?

Will sulfur candles injure clothing, drapes, or rugs?

What is the best way to destroy tiny flies?

How can one get rid of wasps?

Floor Waxes

We think very highly of no-rubbing floor waxes which have certainly contributed great savings in time and labor. The development of water-resistant qualities in these waxes likewise merits applause. In our laboratory we make use of a phonograph in determining wear-resistance of waxes. A glass plate is substituted for the record and a circular eraser for the needle—and the test goes 'round and 'round.

Among consumer questions regarding waxes are:

Is no-rubbing wax affected by water?

Rat and Mice

Exterminating Liquid

Per-Mo Rat and Mice Exterminating Liquid can be used as a drink or can be mixed with any food and used as a bait.

Economical to use and a "Guaranteed" Rodent Exterminator.

If you wish an 8-oz. sample send 25c in stamps or coin to cover packing and postage.

— USE —

PER-MO MOTHPROOFING LIQUID FOR GUARANTEED SERVICE

Per-Mo Mothproofing Treatment will prevent moth and carpet beetle damage to Upholstered Furniture, Carpets, Rugs, and Clothing for FIVE YEARS and to Blankets that are laundered for a period of THREE YEARS.

Per-Mo Mothproof is a colorless and odorless liquid, that is applied to any woolen fabric with a spray-gun, either electrically or hand powered. Write for full particulars.

We Will Pack "Per-Mo" Under Your Private Label
Write for Details

PER-MO MOTHPROOF CO.
3729 Virginia, Dept. M. Kansas City, Mo.

"D & O"
PYRETHRUM EXTRACT
No. 20
ODORLESS

Superior in clarity, stability, color, and freedom from extraneous odor.

When you use Pyrethrum Use the best

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D&O ESTABLISHED IN 1798

Which type of floor wax lasts longest on a floor?

Which type of wax is least slippery?

How can the rubbing type of floor wax be removed?

Do you need separate kinds of wax for linoleum and wood?

Can you use floor wax on furniture?

While there are relatively few consumer complaints regarding floor waxes, the majority concern the no-rubbing variety.

Among the complaints are:

Objectionable odor.

Leaves white stains where sprinkled with water.

Spots varnished floors.

Discolors linoleum.

Imparts greyish cast to floor, and can't be removed—although soap and water, and turpentine were used.

Furniture Polishes

Regarding furniture polishes, typical questions asked are:

What are the advantages and disadvantages of furniture wax? Of furniture polish? Of furniture oil?

Should furniture polish be used over furniture wax and vice versa?

What type of wax is best to use if the furniture is scratched?

Are tinted waxes as good as the regular waxes?

Following a complaint that lemon oil caused furniture to turn gray, an investigation disclosed that lemon oil tends to dull and streak waxed furniture. This would seem to indicate the need for additional information on lemon oil labels. The application of a cream polish designed to put a high lustre on old, dried out finishes was found to impair rather than improve the gloss.

Pest Control?

ATLANTA, March 10.—Mrs. T. L. Harrison grabbed a poker and climbed on a chair when her husband cornered a mouse. When the mouse came toward her she got excited and the chair slipped from under her. She fell on the mouse and killed it.

—N. Y. World Telegram.

Metal Polishes

Today the expenditure of considerable elbow grease is still necessary to remove corrosion products from metal, but much progress has been made in this field. The following questions disclose the need for more consumer information on the subject of metal polishes and cleaners:

How should brass candlesticks be cleaned?

How can they be treated to keep them from tarnishing quickly?

How should blackened grease be removed from the grids of a waffle iron?

We have had considerable experience with silver polishes and were one of the first to ban the sale of the deadly cyanide. Yet, to this day some people are still selling cyanide silver polishes for home use.

Glass Cleaners

While the older type of glass cleaners usually were very weak solutions of ammonia, some of the newer products contain other solvents and wetting agents which are more effective.

Spotting Fluids and Cleaners

That there is considerable need for education regarding spot removal and for good spotting kits is borne out by the following consumer questions:

How should grass stains be removed?

How can iced chocolate or iced cocoa stains be removed?

How should a stain caused by shoe polish be removed?

How should candles be cleaned if they become soiled?

How can candle grease be removed from a mohair couch?

How can paint stains be removed from wool? From a white broadcloth shirt?

Here's a challenging one for you. How should one attempt to remove the brown discolorations that appear in the cracks on a china plate?

What will remove iodine stains? rust stains? tar stains?

Among consumer complaints regarding spot removers and cleaners are:

Of a rug cleaner—That it burns the hands, leaves rings, fades rugs.

Of upholstery and fabric cleaners—That they fade and stain fabrics and leave rings.

Of leather cleaners—That they fade colored leathers.

Of silver polishes — That they scratch silver.

Laundry Bleach

Rarely, if ever, are complaints directed at laundry bleach, but there are frequent complaints of deterioation of sheets, pillow cases, shirts and other textile articles. These complaints often arise as a result of the injudicious use of bleach.

Cleaners

Among the products that can be improved upon in the cleaning field are drain cleaners and wall paper cleaners. Drain cleaners that will not injure bowls or drains, and wallpaper

Phosphorus Paste
10 lbs., $4.25; 25 lbs., $9.
50 lbs., $17; 100 lbs., $32.50.
For the extermination of rats and roaches.

Bird Repellent
10 lbs., $6; 25 lbs., $13.50.
50 lbs., $25; 100 lbs., $45.
Keep buildings free of roosting birds.

PEST CONTROL CHEMICALS CO.
P. O. Box 37 *Write for Details* BUFFALO, N. Y.

"GOOD" DISINFECTANTS
Pine Oil Disinfectants Coefs. 3 and 4
Phenolic Emulsifying Disinfectants Coefs. 2 to 20
Soluble Cresylic Disinfectant
Coef. 2.5 (B.A.I. Specifications)
Saponated Solution of Cresol
U.S.P. XI (Cresol Compound Solution)
All made under careful laboratory control. Phenol coefficients determined by LaWall and Harrisson Laboratories.

OTHER "GOOD" PRODUCTS

Insect Sprays	Vegetable Oil Soaps
Cattle Sprays	Liquid Soaps
Bed Bug Sprays	Scrub Soaps (Liquid & Jelly)
Agricultural Insecticides	Floor Wax and Polishes

BULK PACKAGES AND PRIVATE LABEL

JAMES GOOD, INC.
Manufacturing Chemists—Since 1868
2121 E. SUSQUEHANNA AVE. PHILADELPHIA, PA.

cleaners that will remove soil without injury to the paper would both be welcome developments. Of course, not all drains are of the best quality, nor is all wallpaper able to take what it needs to withstand a cleaning job—but the problems are still with us. Perhaps more detailed directions for use, or in the case of the wallpaper cleaner—instructions to try it out on an inconspicuous section will help solve the complaint problem.

Soap Specialties.

Obviously, a number of these products are produced like many other products—in a form created particularly for convenience in using. Intelligent consumers frequently prefer to purchase the more concentrated products because they offer more in return for the spending dollar. It would help consumers if a measure of quantity of active detergent and a measure of detergent quality were included on labels.

Most consumers still are of the opinion that lathering power is an index to detergency. Also, many believe that just because a soap is made of olive oil it is a mild and harmless soap.

Obviously, many of the consumer complaints cited were not justified. Likewise, the questions asked by consumers regarding products in the soap and sanitary products field indicate at times a lack of sufficient knowledge of adaptability, performance and method of use. From this mass of data, however, two things stand out.

One, is the need for yardsticks with which to evaluate the efficiency of these products, and

Two, the need for more widespread dissemination among consumers of information as to the adaptability and use of the different types of products.

At our own laboratories we are constantly trying to obtain the answers to questions relating to these and other products and to keep consumers informed via our Consumer Quiz Broadcast, so that they can buy more intelligently and consume more wisely. Also, at the beginning of each Spring season we give our salespeople a refresher course on the subject of moth products.

Just as the average automobile owner complains only when something happens to his car, dissatisfied consumers of other products let out a yell—and right or wrong—if they are not placated, a customer for the product may be lost. It has been argued that if, however, consumers know more about commodities, in general, there would be less cause for complaint. While this is a debatable subject, the fact remains that regardless of the measure of consumer knowledge, the advantage of possessing this knowledge is negated by the absence of pertinent information accompanying the product.

The opportunity to know more about the products one buys has been denied to most of the grown-ups of our generation for two reasons. One is the trek away from the home into the business world. The other is the introduction by industry of many new products.

Recently an interesting book—written by a physician was published. He evidently was fed up with notions people have on the subjects of food, health, self-medication, exercise, etc. He called the book "Doctors Don't Believe It, Why Should You?" In it he explodes many of the present day fallacies and points out why they are wrong.

Perhaps someone should undertake to write a similar book in an endeavor to educate consumers on the subject of household products. Such a book

NO SHORTAGE OF
STIMTOX "A"

Pest Control Operators and compounders of roach powders facing a shortage of sodium fluoride, should investigate Stimtox "A." This FORTIFIED pyrethrum powder is most economical and effective for the control of crawling insects. The cost per pound of formulae employing mixtures of pyrethrum powder and sodium fluoride may be substantially reduced through the use of Stimtox "A," as the saving in pyrethrum cost alone is over 30%. To extend present stocks we suggest that you replace two-thirds of the sodium fluoride in your formula with Stimtox "A." Write for detailed information.

POWCO BRAND products are sold ONLY to insecticide manufacturers and pest control operators.

JOHN POWELL & CO.
114 East 32nd Street,
New York City.

Prepared to Kill?

Prentiss Pyrethrum Products with high **Pyrethrins** content are your best guarantee of dependable **Killing Power.**

Prove to yourselves that **Prentiss Pyrethrum Products** can be relied upon for **High Killing Power at a Minimum Cost.** Write for samples and prices on—

- CLARIFIED PYRETHRUM No. 20
- HIGH TEST PYRETHRUM POWDERS
- ACTIVATED DUST
- POWDERED RED SQUILL
- POWDERED DERRIS ROOT

Wise PEST CONTROL OPERATORS are substituting PYRETHRUM POWDER for SODIUM FLUORIDE which is almost UNOBTAINABLE. For this SUBSTITUTION PYRETHRUM POWDER of lower PYRETHRIN CONTENT may be used. Write us for special prices.

R. J. PRENTISS & CO., INC.
80 JOHN STREET NEW YORK

should have considerable value particularly at this time, since it is becoming necessary to find new raw materials to take the place of those no longer available.

Because of the shortage of raw materials, our problem today, centers around the maintenance of quality. Also, it becomes more evident that the public must be made aware of changes, particularly insofar as adaptability, performance, durability, and use of products is concerned. The establishment of standards of quality and the creation of yardsticks with which to measure the performance and durability of your products should prove of mutual benefit to manufacturers as well as consumers.

A committee of the National Association of Insecticide and Disinfectant Manufacturers is actively engaged in the development of standards for determining the effectiveness of moth products. Others are contributing to the development of standards and specifications by the Soap Committee — D-12 of the American Society for Testing Materials. These are definite steps in the right direction.

Much more information concerning adaptability, directions for use, potency, and warning disclosures appear on most insecticides and disinfectants than appear on almost any other line of commodities—not even excepting foods and drugs. Many of the other products referred to this afternoon, however, contain relatively little information for the consumer who is interested in getting the greatest possible value at the lowest possible price.

And so in closing let me sum up by saying—

1. Devise means for testing the efficiency, and potency of more of your products.

2. Provide yardsticks to consumers by way of informative labeling so that they may be able to buy intelligently and consume wisely.

3. Help educate consumers to a better understanding of their problems—which after all are also your problems—and your products will be held up to acclaim regardless of the side of the fence from which they are viewed.

—Reprinted from Soap & Sanitary Chemicals, January, 1942.

After taking off, a flea turns and travels tail-first through the air, thus placing the heavy end foremost.

—Science News Letter.

Bubonic Peril Found in U. S. Army Camps

WASHINGTON.—Rodents infected with bubonic plague have been found on military reservations in the United States, publication of recent testimony before a House committee disclosed recently.

Dr. J. W. Mountin, assistant surgeon general of the United States Public Health Service, told the appropriations subcommittee, in requesting a $50,000 deficiency appropriation for plague control, that the principal reservoir of infection is rodents in the western part of the country, especially ground squirrels.

—N. Y. World Telegram.

Derris Supply

According to O. P. D. the total imports of derris in 1939 were 2,849,638 pounds divided as follows: From British Malaya, 2,325,492 pounds; Netherlands Indies, 262,445 pounds; Philippine Islands, 228,632 pounds, and French Indo-China, 33,069 pounds.

At present fair stocks of derris are available but in all likelihood we will be dependent for some time on South American cube and barbosco roots for our supply of rotenone.

—Crop Protection Institute Circular.

Quotation for the Month

A virtue to be serviceable, must, like gold, be alloyed with some common but more durable metal. *—Samuel Butler.*

With the Southern PCOs at Louisiana State University, January 26-27-28

FOURTH SOUTHERN PCO CONFERENCE

■

Upper Left — Left to right: L. S. Bridges, E. R. Barber, W. H. Gates, O. W. Rosewall, "Bill" Buettner, P. Colvert Cissel.

Lower Left — Georgia PCOs.

Upper Right — Texas PCOs.

Lower Right — Louisiana PCOs.

Thousands View Milwaukee Fire Department Training School's Permanent Exhibit of Fumigants and Fumigation Regulations

Any program which accentuates and accelerates a better public understanding of the difficulties and dangers inherent in a fumigation service operation and the professional training requisite to handle such involved procedure, is likely to prove of lasting benefit and interest to the public and to the Industry.

Thanks to the good offices of Harvey W. Klein, Klein Exterminating Co. Inc., the nature of such a program now in operation, is described below:

This exhibit is a permanent installation in the Milwaukee Fire Dept. Training School and has been viewed by hundreds of men connected with the Department and many thousands of visitors that go through the school, and especially now in connection with our local Civilian Defense Program.

The exhibit was arranged by the local group of Milwaukee Fumigators and Exterminators with the co-operation of the Fire Dept., and Assistant Chief Edward Wischer head of the Training School.

As you will note it includes all the various fumigants with a descriptive card, the official warning signs and notices, the safety door lock, and also photographs of the Discoid and Pot Methods of Cyanide Fumigation.

Implicit, and obvious, in Mr. Klein's remarks is the potential of similar opportunities for other localities. No doubt, Mr. Klein, whose address is 1141 N. Third St., Milwaukee, Wis., will be glad to supply detailed particulars of an effective approach on request.

Certainly in order is a vote of thanks to the members of the Milwaukee Fumigators and Exterminators for their progressive spirit, to the Milwaukee Fire Dept., and particularly to Assistant Chief Edward Wischer head of the Training School, for their co-operation which made a reality of a genuinely needed public service, which service, as indicated, also has its niche in the war service.

ACME GAS MASKS*

PROVIDE FUMIGATORS WITH SAFETY COMFORT, AND FULL VISION

Acme knows that fumigators are called upon to use many types of gases and chemicals, while performing their daily duties of exterminating. The Acme No. 4 Gas Mask protects the wearer against the deadly fumes that emanate from gases being used.

Featured in the Acme No. 4 Gas Mask are the Full Vision, Flat, Safety Glass Lenses that give a non-distorted view upward, downward and to either side; a face piece that is light in weight, yet durable and efficient; plus the other well known Acme features.

Acme No. 4 Gas Masks provide the ultimate in Canister Mask protection against any exterminating gas.

Many thousands of Acme Gas Masks are giving first class service throughout the world.

When ordering Canisters, specify type of gas or chemical being used.

Write for Folder PM-387 which describes in detail, the advantages to be gained by using Acme No. 4 Gas Masks—the folder is FREE.

Acme Protection Equipment Co., Inc.

Manufacturers of Respiratory Protective Devices

3605 Liberty Ave. Pittsburgh, Pa.

*Equipped with Acme Type HCN Canisters

EXTERMINATOR'S CHEMICALS

THALLIUM SULPHATE

(Not offered for sale in states where law forbids)

SODIUM FLUORIDE

Domestic or Imported

SODIUM ARSENATE

(Not offered for sale in states where law forbids)

RUMETAN ZINC PHOSPHIDE

Pfaltz & Bauer, Inc.

Empire State Bldg. NEW YORK

Collection Letters Are Best When Written Largely from Sales Angle

By CHARLES A. EMLEY

At a recent round-table discussion I met two credit managers whose collection philosophies are as far apart as the poles. One of these men, a determined, rather cynical individual, considers it his bounden duty to get the money even at the expense of the customer's good-will.

The other might appropriately be called a salesman-collector. While he, too, believes that his primary responsibility is to get the money, he insists that, save in isolated cases involving inveterate deadbeats, collection letters should be "sales" letters—letters devoid of threats which try, through gentle persuasion, to convince the debtor that it would profit him to pay promptly what he owes.

"Such letters," declares this successful credit manager, "retain the customer's good-will; and many firms that occasionally, or even habitually, let their accounts lag are eminently desirable customers whose good-will and cooperation we cannot afford to lose."

E. W. Budke, credit manager of Curtis 1000, Inc., holds to this same opinion. As proof that he practices what he preaches, I present, without comment, four typical letters from his comprehensive repertoire:

Letter No. 1

One of the most trying situations with us, and probably with almost every manufacturer or dealer, is the collection of overdue accounts.

Like most manufacturers, we depend on large volume, small margins and quick turnover for our profit. When we get the volume and the turnover is not so quick—well it simply raises "Ned" with the profit.

So you see we simply have to ask our friends whose accounts are overdue to remit. We don't like to do it, but we can't help it, because, we, too, have bills to pay.

A statement is enclosed. Send your check along today. It will be cordially welcomed.

Letter No. 2

A man who keeps his account paid up with a firm feels a certain satisfaction in dealing with that firm. He feels that he is a privileged person, always welcome; but if he lets the account lag there is a temptation to go elsewhere when he needs supplies.

So it's not only because we need the money that you are receiving this little note. It is because we want your business and you to feel that you are the privileged customer that you really are. You'll be rewarded with reasonable prices, prompt deliveries and all around good service in exchange for prompt payment.

Just pin a check to this letter and mail it today.

Letter No. 3

Over three months ago we shipped you some merchandise on regular thirty-day terms. Since that time two statements and two letters were mailed to you, but you have not replied to any of them.

It is possible that the goods never reached you, or that, having arrived, they were not all that you expected. If either of these assumptions is correct, will you kindly notify us at once so that we can make everything right with you immediately?

For the fifty years and more that we have been in this business nothing has given us greater satisfaction than the fact that our customers have considered our service to mean something they could depend upon. If it hasn't meant this to you, we are anxious to know it.

On the other hand, if everything is O. K. with your shipment, the amount of the enclosed statement is due and payable, and we shall expect a prompt remittance.

Letter No. 4

We are always glad to have you take full advantage of your credit privilege with us because the benefits are mutual.

We fear, however, that you have not realized how long your account is past due, and how many times we

Stop TERMITE DAMAGE with CHIPMAN DRY SODIUM ARSENITE

Stops and prevents termite entrance into buildings from parent soil colony. Soluble in water or may be used as a dust.

Write for Literature and Prices

CHIPMAN CHEMICAL CO., Inc.

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MEMBER NATIONAL PEST CONTROL ASSOCIATION

Estab. 1851

Help

NATIONAL CIVILIAN DEFENSE

Use. . .

Houchin's Insect Powder Blowers

WRITE FOR FULL PARTICULARS

Thos. W. Houchin Corp.

87-101 Ferry Street

Jersey City, N. J.

have written you regarding it. The thought occurs to us that perhaps you might be placing your orders elsewhere, feeling that they might not be welcome because of your delinquent account.

Now please shake off any such feeling. Your interests are our interests and we want to cooperate with you and give you the best of service.

Our terms are thirty days. When more time was taken we didn't complain, feeling that it was helping you. Wasn't that fair?

May we have your cooperation now in the form of a check for $.....?

Thanks.

De Long's files contain many letters of this kind—letters in which the writers have tried, with signal success, to persuade delinquents to **want** to pay, and pay cheerfully, what they owe.

Here is one that was written to a customer who had repeatedly deducted the cash discount when paying invoices after the expiration of the cash discount period:

There is an old saying to the effect that if you take care of the little things the big things will take care of themselves.

We call this to your attention this morning because you have not, for some reason, taken care of one little thing about which we have written you several letters—the cash discount you erroneously deducted when you paid our invoice of .....

You may reason that because only a few cents are involved it would be just as well to forget about it. If this is the way you feel, I must disagree with you.

You of course were familiar with our terms when you placed the order. If, therefore, you mailed your check after the cash discount period had expired—which is what you did—and still took the benefit of the cash discount, can you conscientiously expect us to allow the deduction?

After all, whether the amount involved is 64 cents or $64, the principle is the same. If you agree with me—and I'm sure you do—why not send us your check, or stamps, immediately for.....?

This, I am confident, is what you would expect us to do for you if our positions were reversed.

The following is a sort of "clean-up," last-resort letter that has brought many a check without in the least impairing the good-will of the debtors:

There are four things on which I am sure we can reach a perfect agreement in just about two minutes. Here they are:

1. You have owed us $.....for three months for merchandise you bought in good faith and which doubtless you have used to your profit.

2. You intend to pay us some time, but you haven't told us when.

3. You have received several letters from us about your unpaid account but for some reason (and it may be a good one) you haven't answered any of them.

4. You know, as we do, that no one can offer a single valid excuse for remaining silent indefinitely with regard to a business obligation like yours.

As we are in full accord on all of these things, we ask you in all fairness if we are not fully justified in expecting you to say or do something without further delay? You'd expect us to do or say something, wouldn't you, if you were in our place and we were in yours?

We are going to wait until.....to see whether our confidence in you was misplaced—and we are sure you will prove that it wasn't.

These letters, it will be seen, are simply friendly appeals to the recipients' sense of fairness — appeals which only extraordinarily thick-skinned debtors could ignore, and which only hypersensitive debtors would take offense at. They are **sales**-collection letters.

—Reprinted from Printers' Ink.

If your capacity to acquire has outstripped your capacity to enjoy, you are on the way to the scrap heap.

—Glen Buck.

FUMIGATION JOBS WELL DONE

lead to **MORE BUSINESS & MORE PROFIT!**

NO OTHER FUMIGANT OFFERS IN TOTAL THE ADVANTAGES YOU GET IN LARVACIDE

1—PENETRATION — through mattresses, clothing and back of wall paper, into cracks, crevices, etc.

2—KILLS MOTH, BEDBUGS and most other household insects—and their eggs and larvae.

3—DRIVES RODENTS OUT of retreats, to die on the open floor.

4—EASY TO APPLY—No crocks to upset or break. No menace to rugs, drapes and furniture.

5—UNMISTAKABLE WARNING, even at low concentrations.

6—NO FIRE OR EXPLOSION HAZARD.

7—AVAILABLE IN 1 lb. BOTTLES, fine for small jobs and rodent work; also in cylinders 25-180 lbs.

Write for informative literature.

Larvacide

is a tear gas chemical, shipped in liquid form, not under pressure. Stocked in major cities.

INNIS, SPEIDEN & CO., 117 Liberty St., New York

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CHICAGO • CLEVELAND • CINCINNATI • BOSTON
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BE SAFE and COMFORTABLE ON YOUR PEST CONTROL JOBS

M·S·A DUSTFOE RESPIRATOR

(U. S. Bureau of Mines-Approved)

Affords complete respiratory protection against the toxic or nuisance dusts and mists encountered in many types of pest control work, together with easy wearing comfort over long periods of use. Lightweight, compact, with very low breathing resistance, this respirator features fool-proof exhalation valve, protective filter cover, and many other advantages—detailed in Bulletin No. CM-5.

M·S·A *Comfo* CHEMICAL CARTRIDGE RESPIRATOR

A twin cartridge respirator with flexible facepiece for snug-fitting comfort, this device protects the wearer against harmful vapors and gases given off by certain insecticides. The metal cartridges are replaceable, and contain long-lasting, highly efficient chemical absorbent. Easy to clean and keep clean. Write for descriptive Bulletin No. EM-3.

MINE SAFETY APPLIANCES CO.

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District Representatives in Principal Cities

LOCAL ORGANIZATION NEWS

New York Pest Control Ass'n and Professional Exterminators Ass'n Hold Joint Meeting

HOTEL COMMODORE, MARCH 10, 1942

Dr. James C. Munch, Senior Entomologist, U. S. Fish & Wildlife Service, Brings Antidotes for Important Control Chemical Poisons Up-to-Date

With the whole world a "desert" of war and destruction of life its inevitable concomitant, the joint session of the NYPCA and PEA in the Commodore's South Room proved a refreshing oasis where the thirst-for-antidote-knowledge was slaked, with the major topic centering around the saving of life through the use of correct antidotes in pest control chemical poisonings. Approximately 100 persons who foregathered for the evening comprised PCOs — including members of the two local associations as well as non-members—Government biologists and Health Officials, from points as widely separated as Minneapolis and Hartford.

William O. Buettner and Joseph Finneman, Presidents of the NYPCA and PEA respectively, served as co-chairmen. Mr. Buettner did not long delay the scheduled 7:30 opening. He opened with a talk on Industry chemical and equipment shortages, and intimated the possibility of sodium fluoride being made available in a reasonable length of time and noted the place of Industry in war service.

George B. Lay, U. S. Fish & Wildlife Service, followed with an outline of what constitutes a proper approach to a rat program, in which he emphasized the necessity for calling it a "program" rather than a "campaign;" and the need for adequate surveys to activate such rat programs. He also urged the importance of salvaging paper stock to help obviate a paper shortage needed for print purposes to transmit pest control data and other information where it will do the most good.

Field Agent Ernest M. Mills, U.S. Fish & Wildlife Service, in his informative and interesting talk "Field Use of Poisons and Antidotes" laid the ground work for Dr. Munch's paper "Poisons, Their Actions and Antidotes" (to be published later) to follow. Dr. Munch's engaging personality plus his inexhaustible knowledge of the subject in hand combined to rivet the attention of those present for nearly two full hours.

Due to his inability to attend, Dr. Joseph D. McIntyre's scheduled paper "Commercial Production of Antidote Kits" was not given. Instead, Dr. Munch read a letter from Dr. McIntyre, President, D. Jayne & Son, Philadelphia, making known the commercial availability of antidote kits for PCOs based on Dr. Munch's findings. After a question and suggestion period from the floor, Joseph Finneman brought this unusually constructive meeting to a close about 11:30, though many lingered after that to engage informally in further discussions and additional question-asking.

Among those in attendance were: Arthur Louis Brody, Pioneer Exterminating Co.; Theo. Schmerl, Disinfecting & Exterminating Co.; Vincent Inziullo and Max Chietcon, Insectico Ext. Co.; B. A. La Forge, S. B. Penick Co.; Dr. G. C. Sherrard, U. S. Public Health Service; P. J. Little, Minneapolis Division of Health; Morris Feldman, Columbia Ext. Co.; W. Reimer, Century Ext. Co.; Philip Friedman, Sanex Ext. Co.; John Hauff, Zenith Ext. Co.; W. O. Buettner, Buettner Pest Control Co.; George B. Lay, Dr. James C. Munch and Ernest M. Mills, U. S. Fish & Wildlife Service; J. Shatt, A & P Ext. Co.; Wm. Dunn, X-L Ext. Co.; Dave Weisburger, B & D A Weisburger; F. E. Bohman, Birchard System, Inc., Hartford, Conn., Regional Vice-President, NPCA; Mrs. A. T. Billings, Steamship Sanitation Co., Inc.; A. Duberbaum and Joseph Finneman, Pest Control Corp.; S. J. Hyman, Hygrade Ext. Co.; Wm. Thorpe, Tops Ext. Co.; M. Levine, S & A Ext. Co.; N. Harvey, Town Ext. Co.; Norman Liberman, Thoro Ext. Co.; Sidney Wimmer, Majestic Chemical & Ext. Co.; William Schmitt & Son, L.I.C.; Alex Feuerstein, Standard Ext. Co., N. Y.; N. L. Fremed, Sameth Ext. Co.; K. W. Tompkins, Bliss Ext. Co.; Lothar Vogel, Atlantic Ext. & Fumigation Co.; M. E. Blinder, Josephson Disinfecting Co., Inc., and Oriental Ext. Co.; Caspar Hasselriis, The Ratin Lab., Inc.; A. Glass, Glass Ext. Co., Brooklyn; M. J. Breecher, Federal Vermin Ext. Co.; Joseph L. Giesman, Sanitary Ext. Co., Jersey City, N. J.; J. A. Klein and John K. Medoff, Hudson Ext. Co., West N. Y., N. J.; G. Carpenter and W. J. Shrimplin, Rose Ext. Co.; M. M. Grady, Boston Ext. Co.; H. A. Plaugh, Affiliated Exterminators; H. Kruse, Metropolitan Vermin Ext. Co.; M. A. Heydenreich, Abalene Ext. Co.; M. H. Oachs, Ozane Co., Inc.; S. B. Ascher, Permanent Ext. Co.; B. W. Dyson, Jr., B. W. Dyson, Jr. Co.; Hubert S. Bussell, Bussell Ext. Co.; A. W. Connor, Security Ext. Co.; M. A. Gladstone, Abbott-Madison Corp.; Harry Rosenfeld, World-Wide Ext. Co.; R. J. Kelley, Paramount Ext. Co.; G. Cascalanda, Lincoln Ext. Co.; D. Stotchick, General House Service Co.; Jack Benosche and Phil Mayer, Evins Ext. Co.; Wm. Farrell, Effective Ext. Co.; Charles F. Opitz, John Opitz, Inc., L.I.C.; J. S. Terdeman and Dave

Note: Among the guests present at the recent meeting of the New York Pest Control Operators held at Hotel Commodore were, left to right: A. J. Little, Minneapolis, Minn., Health Department; Dr. G. C. Sherrard, U. S. Public Health Service, Quarantine Station, Rosebank, Staten Island, N. Y.; F. E. Bohman, Regional Vice-President, National Pest Control Association; George A. Lay, District Agent, Fish and Wildlife Service, U. S. Department of the Interior; Dr. James C. Munch, Senior Pharmacologist, Fish and Wildlife Service, U. S. Department of the Interior; Ernest M. Mills, Assistant District Agent, Fish and Wildlife Service, U. S. Department of the Interior.

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Every Responsible PCO Realizes the Imperative of Adequate Insurance Coverage Against the Normal Hazards of His Profession.

We suggest, therefore, that you avail yourself of the facilities of an organization (in business since 1915) that has pioneered in complete insurance protection for the Pest Control Industry; and, who, today, are the largest writers of this type coverage in the U. S. . . . Our co-operation with the national and all local pest control associations has brought about substantial underwriting benefits for the industry. . . . Our policies are issued in American stock companies in all states.

- PUBLIC LIABILITY
- WORKMEN'S COMPENSATION
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Full Protection Now Available Against War and Bombardment

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Blum, Gem Ext. Co.; John Norris, John Norris Co., Inc.; David Cantor and Charles Pomerantz, Bell Ext. Co., Inc.; E. B. Natelson, Lafayette Ext. Co.; J. Sperry, Sperry Chem. Ext. Co.; Walter Krakauer, State G. & L. Co.; Mrs. E. Mendel, Arpco Products & Ext. Co.; S. Guggenheim, Guggenheim Exterminators, Jacques Hess, Exterminating Services Corp.; Max Rosenthal, Pests Magazine; George E. Sanders, Sanders Ext. Co.; J. L. Huberman, Scientific Ext. Co.; A. Schoen, Modern Ext. Co.; W. J. Parker and A. K. Montag, W. J. Parker, Inc.

Professional Exterminators Association

At a dinner held February 10, Joseph Finneman was re-elected President of the Association for the ensuing year; J. L. Huberman was elected Vice-President succeeding H. S. Bussell; William Farrel was re-elected Treasurer and M. H. Oachs were re-elected Secretary. Directors are H. Plough, H. Kruse, S. B. Ascher and C. Pomerantz.

Connecticut Pest Control Assn.

At the regular meeting of the Connecticut Pest Control Assn., held March 11, at Red Schutter Inn, Meriden, Conn., there was considerable discussion regarding possible participation in the 12th New England Health Institute Exhibit scheduled to take place in Providence, R. I. Pete Bohman was delegated a committee of one to contact Mark Weintraub, President, New England Pest Control Association, regarding the matter.

The last meeting of the season will take place April 14, 6:30 P. M., City Club, Hartford, Conn. Invitations to attend have been extended to President Weintraub and members of the NEPCA; Dr. Burgdorf of Hartford, Dr. Friend of New Haven, and Dr. Chapman. An effort will be made to have Dr. Charles H. Blake of M.I.T. as guest speaker of the evening. W. O. Buettner, Secretary, NPCA, is also expected to be present as an honored guest. Report submitted by O. Anderson, Sec'y, CPCA.

The Associated Pest Control Operators, Inc.

The regular monthly meeting of the Associated Pest Control Operators, Inc. was held March 11th at Eaton's Chicken House, Los Angeles, Calif. At this writing the details of the meeting are not available.

The following comments, however, are taken from the publication issued by this organization which has timely significance:

Free Inspections

How many firms employing the system of free inspection have ever stopped and counted the cost to themselves? How many firms using this system could rely on their satisfied customers for their future business? I dare say very few. Then there is something wrong with Free Inspections. What is it? I know firms who have consistently charged a fair price for every inspection for years and who have no other means of securing new business except through satisfied customers and they have prospered and are respected. They do not solicit from door to door, they do not run full page ads in the telephone book with all kinds of statements that are this and that. THERE IS NO SUBSTITUTE IN STRUCTURAL PEST CONTROL FOR HONEST SQUARE DEALINGS BOTH WITH YOUR COMPETITOR AND CUSTOMER. NOTHING SHORT OF RIGHT IS RIGHT.

It is unfortunate that firms who use Free Inspections and high pressure salesmanship cannot see that good work and satisfied customers will pay the larger dividends. Structural pest control in California, especially when referred to as Termite Control is like waving a red flag in a bull's face to some property owners. Some of them have a perfect right to feel that way too. Along comes a very pleasant contact at the front door (they are in the neighborhood today and would you like a free inspection). The lady at home (always ready to get something for nothing) approves and we're off to the races. I am not saying that all free inspections are wrong because I have found cases where the inspector has bent over backwards to give the customer a square deal. These cases are few and far between. However, the average free inspector will land perhaps one job out of ten inspections. So the tenth man must pay for nine more inspections, if the operator is breaking even. It's safe to say that each inspection has cost the operator at least three dollars (if he is doing his work right). Then the man who purchases this tenth job must have a handicap attached to his bill to the tune of thirty dollars in addition to the cost of the job. Does this make good reasoning or is it the kind of business that builds future customers from satisfied customers? You and I know the answer.

There are firms both large and small who are in this business of structural pest con-

From the Atlantic to the Pacific
From the Great Lakes to the Gulf the

TOX-EOL SYSTEM
OF TERMITE CONTROL

Has Proved Its Worth and Economy in Many Years of Service on Thousands of Jobs Both Large and Small

With The Tox-Eol System

You use the same chemical for both ground and wood treatment.

Your cost for chemical and labor are both low.

Your profits are correspondingly more satisfactory.

You can give your customers a FIVE YEAR WARRANTY participated in by the manufacturer.

The Chemical Used

Is practically unaffected by normal heat nor moisture so it stays where you put it.

Leaves no stain—does not affect paint—has no persisting obnoxious odors.

Is effective against rot-causing fungus and most wood eating insects including Lyctus as well as Termites.

Practically eliminates expensive re-treats when our simple recommendations are followed.

Phosphorous Paste for Rats and Roaches. Contains 7%-8% ZINC PHOSPHIDE with a scent very attractive to these pests. Easily diluted with water to mix with bait. Sample pound can 50c post paid. 5 lb. can at $2.00. 10 lb. can at $3.75 f.o.b. Memphis, Tenn.

WRITE TODAY FOR COMPLETE PLAN OF DEALER CO-OPERATION

CRE-O-TOX CHEMICAL PRODUCTS COMPANY

Manufacturers of Pest Control Chemicals

MADISON AT WILLETT — MEMPHIS, TENNESSEE

trol in Southern California just as long as they can make it pay and get away with murder without thought of the rest of the industry. Just as long as these firms continue abuses the public can truthfully refer to the business as a racket. The answer to a healthy condition in the structural pest control industry is firms to quit trying to fool the public—charge for their inspections and do honest work. Just as long as free inspections exist and ding-donging the front doors day in and day out, we will stay in the racket class.

WHY NOT GET TOGETHER AND DO AWAY WITH FREE INSPECTIONS.

Northwestern Pest Control Assn.

On February 14th, the members of the N.W. Pest Control Association assembled with their wives for dinner and a pleasant get-together for the remainder of the evening. The event drew this newspaper publicity:

EXTERMINATE 'EM

Eradicators Willing to Wipe Out Pest—Japanese

This question was posed at the dinner of the Northwest Pest Control Association, composed of exterminators and fumigators, last night at Anglesey Cafe.

"Can't the boys in your business do anything about the Japs?"

The answer is: They have plenty of materials for the job, if they could get at 'em.

Dallas and Fort Worth, Texas

EDITOR'S NOTE: *Our apologies for this news item not appearing in March Issue.*

Pest Control Operators from Dallas and Fort Worth, Texas, joined in welcoming William O. Buettner, Secretary of the National Pest Control Association, who was guest speaker at a meeting held on January 31st in Dallas, Texas.

The PCO in War Service as a "Pest Control Expeditionary Force" was stressed by Bill Buettner as he explained unified action, and understanding and standards in pest control service work. As PCOs become sensible in their advertising, have regard for competitors, adopt and follow through on the 1-2-3-3½ fundamental principles of subterranean termite control, good domestic fumigation practices, and proper rat procedure, the PCO will be recognized as essential in the interests of public health and sanitary program to say nothing of being the protector of food supplies and other materials and commodities.

Possible legislation in Texas was considered with a determination to prevent any proposals being submitted without the industry first reviewing such proposals. A committee composed of H. O. Abel, Alfred Zimmern, and Bryant Nowlin, will submit a report at the next meeting which is to be arranged by C. A. Trimbos and George Shamblin.

Those in attendance were: Alfred Zimmern, American Building Protection Co.; T. W. A. McConnell, American Building Protection Co.; H. C. Ellison, American Building Protection Co.; C. A. Trimbos, Protex Service, Inc.; W. G. Nance, Best Chemical Co.; W. P. Smith, Smith's Pest Control Co.; O. O. Abel, Abel Exterminating Co.; Clifton Clark, Abel Exterminating Co.; N. W. Corley, Abel Exterminating Co.; F. E. Tacker, Abel Exterminating Co.; W. E. Dabbt, Abel Exterminating Co.; Elmer Morgan, Morgan Brothers; Clifford Bracken, Thompson Hayward Chemical Co.; G. H. Wooldridge, Wooldridge Exterminating Co.; G. A. Faulkner, Faulkner Exterminating Co.; Frank Condon, Thompson-Hayward Chemical Co.; George Shamblin, White Crusader Co.; Louis Mandlak, White Crusader Co.; Bryant Nowlin, Killant Chemical Co.; Wm. O. Buettner, National Pest Control Association.

Houston, Texas

EDITOR'S NOTE: *This news did not appear in March issue because of crowded conditions, our apologies.*

Over 20 PCOs of Houston, Texas, including visitors from San Antonio, Laredo, and Dallas, held a dinner meeting at the Chicken Shack, Friday, January 30th, on the occasion of the visit of William O. Buettner, Secretary of the National Pest Control Association.

For three hours enthusiastic discussion took place after there was presented by Mr. Buettner the highlights of the recent Southern PCO Conference at Baton Rouge and outstanding subjects of interest such as shortage of supplies, chemicals, equipment, Legislation, Rat Control Program and the Pest Control Industry in War Service. Fumigation practices with emphasis on observance of precautionary measures were likewise discussed.

That there is a trend toward legislation in the State of Texas was recognized by the firms in attendance. More particularly the need of studying possible phraseology which might be embodied in such state law or the need of any law consumed a goodly part of the discussion. Honesty can hardly be legislated, and basically education and self-regulation among the firms of the industry is far more important than legislation. A committee composed of E. F. Heyd and J. L. Howell will offer recommendations at the next meeting of the Houston PCOs which will be arranged by R. F. Barrett.

Those in attendance were: H. O. Abel, Abel Exterminating Co.; R. F. Barrett, Barrett Exterminators; John Kilmartin, Kilmartin Co. of Laredo, Texas; A. P. Halton, Getz Exterminators, Inc.; J. H. Parkie, Parkie Exterminating Co.; H. T. Lang, Lang Exterminating Co.; T. E. Franklin, Franklin Exterminating Co.; J. S. Breitenbach, Superior Chemical Co.; Otto Ritter, Sr., Ritter Pest Control; Frank W. Miller, Superior Chemical Co.; C. L. Wistrand, Houston Insect Ext. Co.; T. J. Howell, Howell Termite Control Co.; B. M. Bedingfield, Bedingfield Exterminators; A. E. Damon, Cederene Products Co.; R. R. Williams, Wilkie Company; J. T. Howell, Howell Termite Control Co.; Wm. O. Buettner, National Pest Control Association; Rudy Alton, B & R Exterminating Co.; W. S. McFarland, McFarland Pest Control; Mrs. W. S. McFarland, McFarland Pest Control.

Louisiana Operators Will Form PCO Association

Over twenty companies and offices of pest control firms attended a meeting at Baton Rouge, La., on February 26th. This meeting was requested by the PCO's who attended the Southern Pest Control Operator's Conference with arrangements of program left to W. W. Smith and L. S. Bridges.

Principal discussion centered around proposed changes in the present State Law and the formation of a State PCO Association. Messrs. E. R. Barber, A. Denis and William Hogan were appointed a committee to submit plans for the permanent State Association as well as to prepare suitable Constitution and By-Laws. Such report is to be submitted at the next meeting that has been called for March 23rd.

It is contemplated that changes will be offered in connection with the present State Law governing household and structural pest control such as the inclusion of rodent control (at present this is not included in the law) and stronger inspection methods to stop some of the abuses in termite control. W. E. Anderson, State Entomologist, encouraged the pest control operators to make recommendations that would not only be fair to the public but also fair to the operators. Commenting on the number of termite jobs done in Louisiana during the last year, it was pointed out that some 1064 jobs completed would mean too much for the present staff to handle as to inspections so that if in the interests of the public these jobs must be inspected, it would mean the employment of inspectors which in turn would carry with such appointments the need for additional revenue.

The complete program of the March 23rd meeting will be handled by H. C. Jamerson and Sydney J. Rosenthal.

Indiana PCOs Elect

The regular bi-monthly meeting of the Indiana Pest Control Operators Association was held at Purdue University, March 21. President Maurice Bailie presided and the principal feature of the business session was the election of officers, as follows: President, Bert Lewis; Vice-President, E. E. Purdy; Secretary-Treasurer, E. E. Edwards; Directors, Maurice Bailie, C. O. Partlow, and J. R. Franklin. Committees for the coming year were appointed as follows: Roach Committee, D. B. Wilson, chairman, W. L. Dash and J. R. Franklin; Fumigation Committee, Ed Arnott, chairman, O. K.

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Williams and C. L. Bosley; Termite Committee, L. H. Parsons, chairman, George Carr and G. W. Reuter; Membership Committee, Walter Gibson, chairman, H. B. Jordan and L. C. Baxter.

Professor Davis reported on several items of interest. Perhaps of major importance was the disposal of the Pests and People booklet. Two hundred copies, ordered by the Association, were received after First Lieutenant C. O. Partlow, Secretary of the Association, was called to the service. As directed, copies were sent to the 175 county and city health officers of the state with enclosure card reading, "With the compliments of the Indiana Pest Control Operators Association."

The program included the following discussions: Insects and Other Arthropods and Their Relation to Disease, by J. J. Davis; The Principles of Classification in the Animal Kingdom, by B. E. Montgomery; and a laboratory exercise in classification of classes of the phylum Arthropods and orders of insects by H. O. Deay.

Dept. of Agriculture and Industries, Montgomery, Ala., Calls Meeting Alabama PCOs

A meeting to discuss the Professional Service Law and suggestions thereto was called for March 28, 1942, at 9:30 A. M. at the Hotel Whitley, Montgomery, Ala. All P. C. O.'s were urged to attend.

New Books

Insect Pests

By WILLIAM CLUNIE HARVEY, M. D. and HARRY HILL

The extermination of insect pests is no longer governed by haphazard, empirical procedure, but is a skilled science requiring the employment of rigid methods and of persons possessing considerable technical knowledge.

During recent years, the study of insect pests has received an increasing degree of attention, which is in every way justified when the effects produced by this type of nuisance is taken into consideration. This has resulted in benefit to the community. The foundation of successful vermin destruction is an accurate knowledge of the habits, life history and environment of the insect in question. It is only when this problem has been properly tackled and thoroughly understood that the chemical and mechanical means of combating pests can be utilized.

The authors have assembled a vast fund of practical information within the confines of a small handbook, which should be of great value to those who are called upon to play some part in insect control during the present emergency. Now when so many thousands of our men are brought together in training quarters, that which was formerly considered a nuisance has finally been recognized as a definite menace. Every war introduces problems in this particular line of activity and the authors have kept this fact before them in preparation of the material for INSECT PESTS. Because of this view point, this book is of special importance at this time.

Part I deals with Insect Pests, including the bed-bug, the flea, the louse and other vermin. Part II is devoted to the Principles and Practice of Disinfestation, including building construction and infestation, gaseous fumigants, technic of fumigation, educational measures for insect control, legislative control, human toxicology, and the disinfestation of foodstuffs and ships. There are two appendices containing forms and records and specimen propaganda leaflets; the book is well indexed and is attractively printed and bound.

Price $4.25

Order from PESTS, 512 East 14th St., Kansas City, Mo.

Carpet Beetles

(Continued from Page 8)

Probably the most serious limitation of water-base sprays is their inability to penetrate the fabric adequately. Even with a wetting agent of maximum efficiency, water has more than twice as great a surface tension as the petroleum oils commonly used as carriers for insecticides. This disadvantage is not so serious in the treatment of blankets and certain pieces of clothing which can be dipped; but in the moth-proofing of rugs and furniture, the factor of penetration is of the greatest importance. On mohair furniture, for example, the water will form in droplets on the pile, so that the undersurface, where moth damage most commonly occurs, gets none of the protective chemical. Whenever a spray settles in droplets, the toxicant is deposited in little heaps. Ordinary wear, vacuum cleaning, brushing, etc., will almost certainly remove much of the toxic substance so deposited. Organic solvents—and particularly petroleum oils—creep into the fibers and, because of their low surface tension, tend to distribute themselves uniformly over the greatest possible area, carrying the dissolved toxicant into the fibers. If the toxic compound is completely soluble in oil, it is deposited evenly in particles perhaps as small as molecules of the substance.

Jackson and Wassell, who naturally were prejudiced in favor of organic solvents, summarized in their 1927 publication the disadvantages of water-base mothproofing solutions.

"Water causes wool to shrink, hardens the leather of fur, spots varnished surfaces, loosens glued joints in wooden furniture, water-spots silk linings of wool or fur garments, removes pleats and other creases pressed into wool fabrics, impairs the shape of wool garments, destroys the curl and shape of such feather articles as plumes—and lastly, it is devoid of the specific insecticidal (larvicidal) properties of many organic solvents."

It is, of course, true that water sprays do not kill the fabric pests which may be present when an article is treated, unless those insects later feed on treated goods.

Now I want to make a few remarks about the toxic agents in mothproofing solutions. I mentioned a little while ago that among the more recent investigators, the consensus is that the silicofluorides are the most effective of the water-soluble mothproofing agents. Not all workers, however, will agree with that opinion. One English worker, for example, contends that the silicofluorides have a deleterious effect on wool and that they alter the shades of certain dyestuffs.

Arsenic, in various forms, is commonly used as a toxicant in water-base mothproofing solutions. In my own tests, none of the arsenical agents were adequate in practical concentrations. Dr. Back has consistently maintained that aqueous solutions of arsenical compounds are ineffective. Furthermore, he states in an article written in 1938,

"The United States Department of Agriculture does not aprove or recommend mothproofing solutions that depend on their effectiveness upon arsenic in any form or amount."

Another government worker, speaking of both arsenic and fluorine compounds as mothproofers, says,

"It should be born in mind that these substances are poisonous and their use in clothing has been condemned by some authorities."

Our experience with oil-base sprays now commercially available is that they lack toxicity, stain white wool, or are too expensive, compared to water-base mothproofing solutions. During the past several years, therefore, we have been attempting to develop new toxicants. In this investigation, we have given special attention to synthetic organic compounds which are soluble in light petroleum oils. Most of our results, naturally, have been negative, although there are a few bright spots in the history of our research. We have found, for example, that certain of the materials under consideration are far more toxic than the inorganic fluorides and arsenicals. Our results from laboratory tests on silicofluorides indicate that it requires from two to three months for ten black carpet-beetle larvae to be killed by the treatment. Similar treatments with arsenicals will kill ten larvae in about six months. Ten larvae placed on treatments of one of the most effective of the commer-

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cial oil-base sprays remained alive for nearly a year. With one of our experimental compounds, however, a treatment killed five groups of ten carpet-beetle larvae in an average of less than 19 days per group. This same test, reinfested a year after treatment, still killed ten larvae in 21 days.

Other of our experimental compounds show a very high repellency to carpet-beetle larvae. As a matter of fact, most of the synthetic agents we have tested exhibit some repellent effect when compared with treatments of inorganic toxicants. A few of these materials are so very repellent that the beetle larvae actually crawl off the wool, apparently without attempting to feed on the treatment at all.

In spite of the apparent advantages of these new compounds over present mothproofing agents, our investigations are not yet complete. In other words, although I have pointed out various weaknesses in mothproofing solutions now in use, I nevertheless am not yet ready to recommend something better. I hope, however, that I have given you some information which will help you to evaluate your own mothproofing solution or some new material which may be offered for your consideration.

Perhaps I had better take just a couple of minutes more to anticipate some of the reactions which this paper may have aroused. Some of you are going to say, "You condemn water-base sprays in general and arsenical sprays in particular, and yet our company has been using an aqueous arsenical solution for years, and we've never had a complaint and never have had to do a job over." Or you may say, "Our oil-base spray has been completely satisfactory. Why are you wasting your time looking for something better?"

My response to these challenges is, first of all, to repeat what one of your members reported at these meetings two years ago, Mr. Jennings at that time pointed out that one manufacturer was selling guaranteed mothproofed articles and yet made no attempt to treat those articles at all! He found that it was cheaper to satisfy the claims against the company than to treat the articles so that no claims would be received. In other words, many mothproofing jobs are satisfactory simply because the original infestation was eliminated and no subsequent infestation took place within the time limits of the guarantee.

In the second place, fabric pests are very easily repelled, or perhaps I should say that they exhibit notable preferance in foods. Although a given treatment may not be effective under eat-or-starve conditions, it may still be less attractive to carpet-beetle or clothes-moth larvae than entirely untreated fabric. Such treatment, therefore, is apparently satisfactory merely because it induces the larvae to feed elsewhere.

Finally, to those of you who can say that your own mothproofing agents are completely satisfactory, I must reply that we did not have you in mind when we planned our research program. Certainly I cannot criticize a method which has been entirely successful over a long period of years. Moreover, I am willing to admit that a reasonably good mothproofing job can be done by an experienced operator even with water-soluble agents, provided that great care is taken to insure adequate distribution and penetration of the solution. In our investigations, however, we have been thinking not only of the pest control operator but also of the thousands of housewives who annually spend many dollars for inadequate materials or for effective materials which do not mothproof because they do not penetrate the fabric.

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WHAT'S NEW IN PEST CONTROL-PERSONALS

C. Russell Lee, The Crusader Co: Mr. Lee of Detroit, Mich., one of the participants in NPCA activities from its very inception whose efforts contributed to creating a better understanding of the value of the Association, died on March 3, 1942. He will be missed by his many friends in the Industry. Our sincere condolences to Mrs. Lee, his wife, who survives him.

F. T. C. Rules on Bed Bug Destroyer: R. M. Hollingshead Corp., Camden, N. J., has stipulated to cease advertising that Whiz Self-Polishing Floor Wax is used by the Bell Telephone System, when such is not a fact; that Whiz Bed Bug Destroyer is the most effective product of its kind ever developed; or that Whiz No. 500 Pine Oil Disinfectant, when used as a spray, will revitalize or purify the air in a room.

Advocates Governmental Rat Plague Publicity and Counter Measures: In a list of 42 ideas for war advertising that U. S. might adapt out of experiences (and mistakes) of Britain and Canada published in Printers' Ink was included this one: Point to the threat of a plague of rats and publicize counter measures.

Directory of full-time local Health Officers, 1942: This directory has been compiled from data furnished by the State health officers. The tabulation presented gives the full-time health officers for five distinct classifications of local health jurisdictions. Prime numerals appearing after the names of the health units indicate type of jurisdiction, as follows: 1, county; 2, city; 3, city-county; 4, State district; and 5, local district. Copy of this directory may be had by writing for Public Health Reports, Vol. No. 57, Number 10, dated March 6, 1942 to Superintendent of Documents, Washington, D. C. Price 5c (no stamps.)

National Sanitary Supply Assn., Inc.: Milwaukee, will hold its annual convention April 20-22, 1942, at Hotel Morrison, Chicago, Illinois.

Synthetic Organic Chemicals, U. S. Production and Sales, 1940. The Tariff Commission has just issued its latest yearly survey on the production and sales of synthetic organic chemicals in the United States. This study is of special significance at this time since it includes statistics on many products essential to the war effort and to the public health. Copies of this 64-page pamphlet, known as Report No. 148, Second Series, can be purchased at the office of the U. S. Dept. of Commerce, 500-5 Ave., New York City, at 10c per copy.

Should mean more moth work: Press release from U. S. Department of Agriculture dated March 10, states estimated 1941 production of mohair production in 7 leading States will be 21,777,000 pounds, about 3 per cent larger than previous record in 1940. Number of goats and kids clipped in 1941 was 4,544,000 also a new record. Average quantity of hair per goat and kid clipped was 4.8 pounds, compared with 4.9 in 1940.

Getting to be Useful. Jackrabbits, considered a pest by farmers, have become a source for fats and oils used in soap compounds manufactured in Kansas.

Food, Beverage and Equipment Show Will Be Held April 20-23, 1942 Buffalo, N. Y.

A single mouse is reported to have created some difficulty at Mount Vernon during the Westchester blackout. It should be kept in mind that cats are pretty efficient when the lights are out.

Infestation Reported: A paper prepared by Allan A. Twitchell and Anatole Solow and presented at Thirteenth Meeting of Committee on Hygiene of Housing, Washington, D. C., February 2, 1942, titled AN APPRAISAL TECHNIQUE FOR URBAN PROBLEM AREAS AS A BASIS FOR HOUSING POLICY OF LOCAL GOVERNMENTS, was reprinted in Public Health Reports, Vol. 57, February 27, 1942, No. 9. It covered salient housing characteristics of three problem areas in the State of Connecticut and included, in part, percentage of infestation reported in: Clum block, Central substandard area, Low-rent Districts (random sample). Copy of complete paper may be had on payment of 5c (no stamps) to Superintendent of Documents, Washington, D. C.

Typhus Front: An article under this title over the signature of Andre Visson and of reader interest to PCOs appeared in the New York Herald-Tribune, March 2, 1942.

BUG-PROOFING: Royal Portable typewriter received complaints some time ago from Borneo that members of an insect breed there were so fond of the fabric on the typewriter cases that they were eating it. Although Borneo is not much of a market, the company experimented and today all Royal Portable cases are covered with a coat of special lacquer (bug-proof). "The bugs of Borneo," headlines an advertisement built around this fact, "are wilder than ever." —*Printers' Ink.*

Fixtite is a chemically prepared cement for repairing concrete and other out-of-door purposes. Made by the Lemore Corp., Jackson, Mich., it comes in powdered form which is mixed with water to form a putty-like consistency that expands when setting.

—Printers' Ink.

A card received from J. G. Justice, Noxx Chemicals, Columbus, Ohio, informs us that he is at present vacationing in old Mexico. He has spent 2 months there, the round trip taking him over 8,000 miles. What is the tire situation down there, Mr. Justice?

Window Display — According to "The Post Warden," air raid headquarters of Sector H, Zone 2, 41st Pct., at 960 E. 163d St., N. Y. City, has a sign in the window: "Help Wanted, Exterminators" alongside the pictures of Hitler, Mussolini and a Japanese Ambassador over a cage of three white rats.

Innis, Speiden Company Division Celebrates 25th Anniversary

The Isco Chemical, Electrolytic plant at Niagara Falls, N. Y., division of Innis, Speiden Co., is presently celebrating the 25th anniversary of its founding. Operations started in 1917 under the direct supervision of Ebec. C. Speiden. The first products manufactured were chlorine and caustic soda. In 1918 caustic potash was first produced at the plant and today it is an important source of potash salt products.

N. A. I. D. M. Makes Change in Summer Meeting Plans

The summer meeting of the Association will not be held at the Hotel Hershey, Hershey, Pa., as originally planned.

Emergency conditions have entailed a switch of the meeting place this year to the Edgewater Beach Hotel, Chicago, Ill. The dates remain the same: June 8 and 9, 1942.

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Additional Patents Relating to Pest Control

By DR. R. C. ROARK

EDITOR'S NOTE: *This service is provided through the Department of Agriculture for the purpose of bringing to the attention of those interested such matters that may be of assistance to the industry. The Department of Agriculture assumes no responsibility for the merits or workableness of of any of the inventions mentioned. Copies of all patents can be obtained for 10c (no postage stamps) sent to the Patent Office, Washington, D. C. When placing orders be sure to note the number of the patent, the date, the name of the patentee and the subject of the invention.*

2,257,711 (Sept. 30, 1941; appl. Aug. 31, 1938). INSECTICIDE. Ivor M. Colbeth, East Orange, N. J.; The Baker Castor Oil Company, New York, N. Y. An insecticide comprises the distillate obtained by dry distilling castor oil at a temperature between 260° and 300° C. The material contains undecylenic acid and heptaldehyde. This material may be used in the usual ways that insecticides are used for destroying insects or pests. It has been found to be particularly useful for getting rid of Japanese beetles and other winged insects since they are strongly attracted by the odor of the material. When the material is placed, for example, in an ordinary type of beetle trap such as an open vessel with baffles above the liquid, the insects are attracted by the odor and when they approach the bait and hover over the liquid, the concentrated vapors seem to paralyze them and they consequently fall into the liquid and perish. The material is soluble in hydrocarbons. It can be dissolved in low-boiling hydrocarbons such as gasoline, for example, and can then be sprayed on cattle, trees, vegetables, etc., to destroy the pests. The cattle are not injured and the residue left on fruit, flowers, etc., is non-toxic and can be washed off when found to be unpleasant to the taste of the users.

2,262,454 (Nov. 11, 1941; appl. April 19, 1939). PEST CONTROL. Albert Lawrence Flenner, Wilmington, Del.; E. I. du Pont de Nemours & Company, Wilmington, Del. A pest control adhesive composition for use in horticultural spray suspensions consists essentially of a 5 to 20 per cent solution of rosin residue in ethyl alcohol containing 0.25 per cent to 2.5 per cent of the sodium salt of sulfated oleyl acetate.

2,262,523 (Nov. 11, 1941; appl. Sept. 21, 1938). INSECTICIDE. Raymond F. Bacon, Bronxville, N. Y., and Isaac Bencowitz, Newgulf, Tex.; Texas Gulf Sulphur Company, Houston, Tex. An insecticide and fungicide comprises a finely divided product obtained by fusing a mixture containing elemental sulphur and an amount of rosin equal to not less than about ten per cent of the total weight of the sulphur and rosin, heating the fused mixture to a temperature and for a period of time such as to effect a chemical reaction between the sulphur and the rosin, cooling the resulting product, and finely dividing the cooled product.

2,263,078 (Nov. 18, 1941; appl. Oct. 19, 1940). RATTRAP. Andrew S. Flowers, Brundidge, Ala.

2,263,386 (Nov. 18, 1941; appl. March 26, 1940). ISOTHIOCYANATES OF AROMATIC ETHERS. William F. Hester, Drexel Hill, Pa.; Rohm & Haas Company, Philadelphia, Pa. The patentee claims isothiocyanates of aromatic ethers selected from the group consisting of phenoxybenzene, phenyl thiobenzene, benzyloxy benzene, and benzyl thiobenzene. Examples are 4-phenoxyphenyl isothiocyanate and 4-benzyloxyphenyl isothiocyanate. These ether derivatives have been found to possess higher insecticidal activity, more favorable solubility, and less odor than simple aromatic isothiocyanates.

2,263,827 (Nov. 25, 1941; appl. Oct. 13, 1939). INSECT LARVAL LURE. Edouard H. Siegler, Takoma Park, Md.; Henry A. Wallace, as Secretary of Agriculture of the United States of America and his successors in office. An insect larval lure adapted as an adjunct to an insecticide, contains as its essential active ingredient sorbitol admixed with lead arsenate.

2,263,842 (Nov. 25, 1941; appl. Sept. 3, 1937). MEANS FOR CONNECTING CONTAINERS TO SPRAYING DEVICES. Clarence Gaylord Gross, Princeville, Ill.; Binks Manufacturing Company, Chicago, Ill.

2,264,312 (Dec. 2, 1941; appl. Nov. 22, 1938). SPRAYING DEVICE. John M. Hothersall, Brooklyn, N. Y.—American Can Company, New York, N. Y.—An object of this invention is the provision of an air operated spraying device for liquid insecticide cans.

2,264,539 (Dec. 2, 1941; appl. Jan. 4, 1939). SPRAY APPARATUS. Frank F. Lindstaedt, San Francisco, Calif.—A small sized horticultural sprayer is described.

2,264,636 (Dec. 2, 1941; appl. Oct. 12, 1940). WEEDING TOOL. Frederick E. Griswold and Roy C. Canfield, Lompoc, Calif.

2,264,762 (Dec. 2, 1941; appl. Sept. 10, 1938). DEPOSITING AGENT FOR SOLID INSECTICIDES. Hugh Knight, Claremont, Calif.—Shell Development Company.—A depositing agent for the application of insecticidal material from aqueous suspensions thereof, consists essentially of a mixture of a hydroxy ester made by reacting a polyhydric alcohol having from 2 to 4 carbon atoms with a high molecular weight fatty acid, a salt made by reacting a lower alkyl amine with a carboxylic acid having at least 6 carbon atoms, and small amounts of bentonite and aluminum sulfate.

2,264,875 (Dec. 2, 1941; appl. Feb. 25, 1941). INSECT CATCHING DEVICE. Philip Greuling, Needham, Mass.—one-half to Arthur F. Sisson, West Newton, Mass.—A support for sticky flypaper is described.

2,265,155 (Dec. 9, 1941; appl. Sept. 11, 1940). ACTIVATED INSECTICIDE COMPOSITION. Robert J. Geary, Blue Point, N. Y.—The Dow Chemical Company, Midland, Mich.—An aqueous insecticidal emulsion suitable for application to living plants comprises a vegetable oil and dissolved therein a toxicant mixture comprising from 1 to 16 parts by weight of dibenzyldisulphide, 1 part by weight of rotenone, and from 1 to 16 parts by weight of phenothioxin.

2,265,156 (Dec. 9, 1941; appl. Sept. 11, 1940). ACTIVATED INSECTICIDE COMPOSITION. Robert J. Geary, Blue Point, N. Y.—The Dow Chemical Company, Midland, Mich.—An insecticide concentrate comprises a vegetable oil, 1 part by weight of rotenone, a solubilizing agent for the rotenone, and from 2 to 5 parts by weight of dibenzyl-disulphide per part of rotenone employed.

2,265,204 (Dec. 9, 1941; appl. Dec. 5, 1939). INSECTICIDAL COMPOSITIONS. Frank B. Smith and Harold W. Moll, Mid-

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